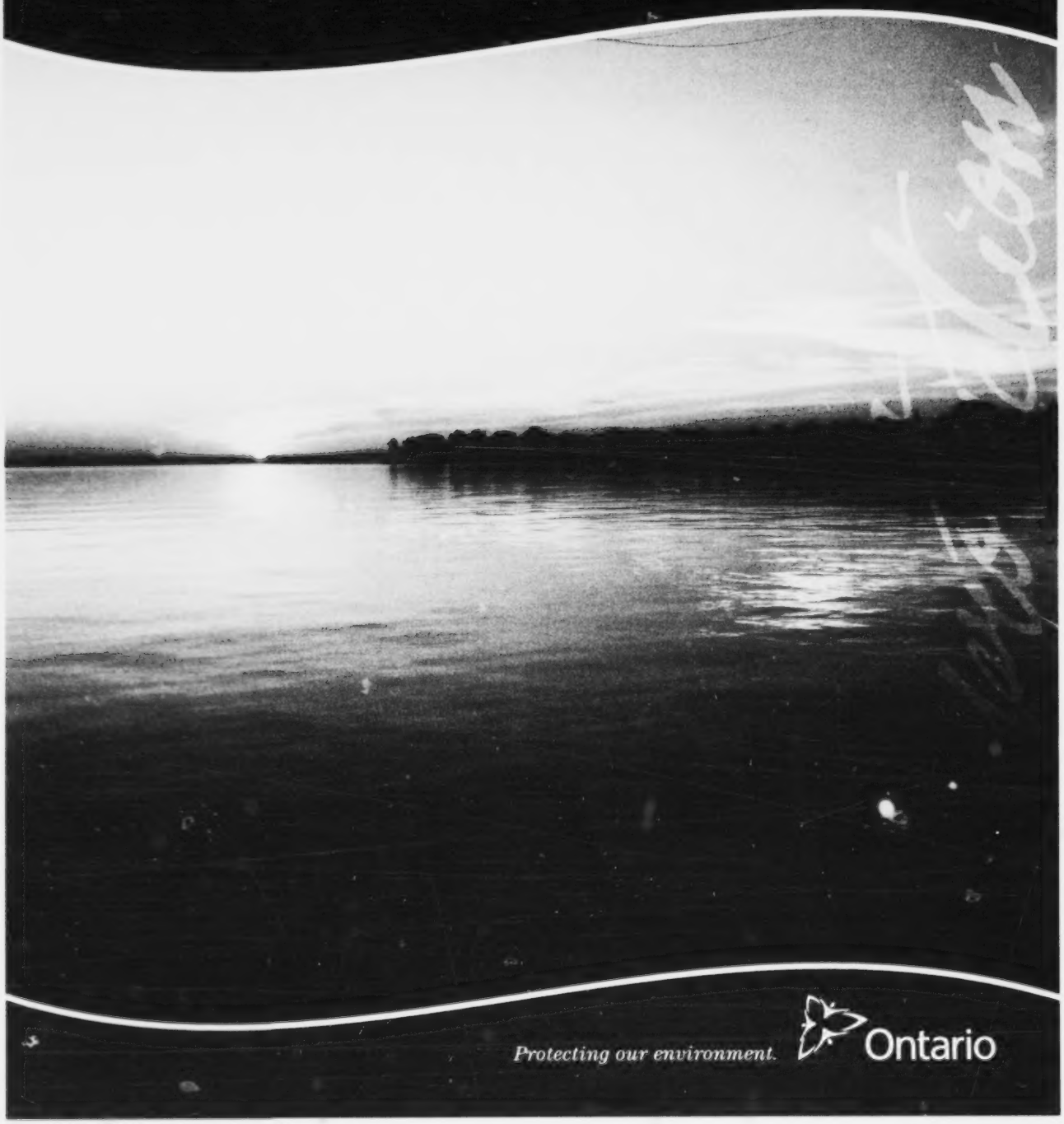
January 2009

Draft Lake Simcoe Protection Plan



Protecting our environment.

Ontario

PIBS 6932e

LETTER FROM THE MINISTER

Lake Simcoe is vitally important to the people of Ontario. The Huron people once called it "Beautiful Water". It still is beautiful water but sadly, we have not always treated it with the respect it deserves.

The Lake Simcoe Protection Act, 2008 received Royal Assent on December 10, 2008. The new Act requires the establishment of a Lake Simcoe Protection Plan that seeks not just to protect, but to restore the ecological health of the *Lake Simcoe watershed.*

Our goal has been to design a framework that would be both comprehensive in scope, and focused on key priorities. These priorities range from improving water quality in Lake Simcoe, to protecting natural heritage in the watershed, to managing the potential impacts from climate change and *invasive species.*

We are fortunate that we can build on the efforts of the many who have worked hard to protect and improve conditions in and around the lake – the Province, Aboriginal communities, the Lake Simcoe Region Conservation Authority, municipalities, industry, farmers and concerned citizens. I would like to extend special thanks to the members of the Lake Simcoe Stakeholder Advisory Committee and the Lake Simcoe Science Advisory Committee for their hard work and dedication throughout the past year. Their passion for Lake Simcoe and valuable advice has helped us develop the best possible Lake Simcoe Protection Plan. Now, we need to do more to continue on a path to a healthy lake.

This is a turning point in the history of Lake Simcoe. I believe the draft Lake Simcoe Protection Plan helps to ensure the long-term protection of the *Lake Simcoe watershed* and the communities that 350,000 people currently call home. It's a balanced plan, one that allows us to see and understand what ails the lake and what we need to do collaboratively to bring it back to a state of health. We want to see that Lake Simcoe remains a popular destination for tourism and recreation, a source of drinking water and that farming in the watershed continues to thrive. By acting now and ensuring everyone who benefits from Lake Simcoe does their part we can help make sure the lake and its watershed stay healthy as the population grows.

We can take the lessons learned as we develop and implement the Lake Simcoe Protection Plan to protect other watersheds across Ontario, establishing a gold standard of sustainability here that we can use as a model in the years to come.

I look forward to your thoughtful input and continued involvement to make the vision of a healthy Lake Simcoe embodied in this draft Plan a reality.

Yours sincerely,

John Gerretsen

Minister of the Environment

We believe ...

that the lake is life and the health of the lake determines the quality of life.

We see a *Lake Simcoe watershed* ...

where a healthy environment provides the foundation for healthy communities, healthy people and a healthy economy

where the well-being of diverse life forms – fish, wildlife, plants and human beings are enhanced

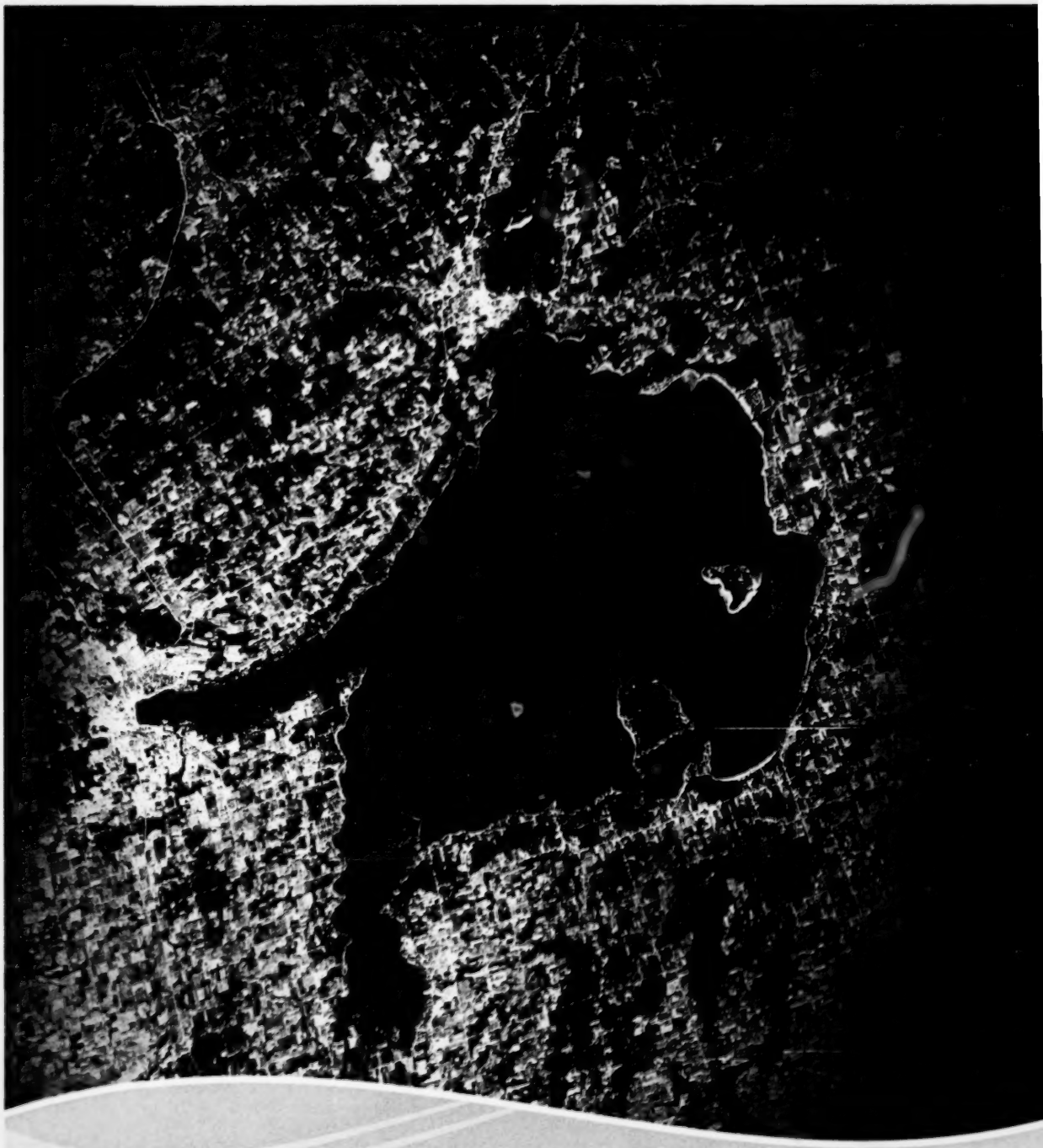
where we protect our natural environment rather than act as if ours was the only generation or the only species that mattered

where natural shorelines are maintained and where *development* is well planned and ecologically sound

where citizens, governments, businesses and industries are stewards of the land, water and natural heritage

where there is greater cooperation, leadership and responsibility among all parties to protect the *Lake Simcoe watershed* for present and future generations

where our children can take their children to the beach, and our grandchildren can take their grandchildren fishing and canoeing.



Chapter 1
Introduction

ECOLOGICAL HEALTH OF LAKE SIMCOE AND ITS WATERSHED

The *Lake Simcoe watershed* contains significant natural, urban and agricultural systems including parts of the Oak Ridges Moraine and the Greenbelt. It also holds provincially-*significant wetlands, woodlands,* prime agricultural areas, and specialty crop areas such as the Holland Marsh.

Ontarians have made clear their support for a comprehensive plan to protect and restore the ecological health of Lake Simcoe and its watershed. There are serious environmental problems that demand our attention and our collaboration to find solutions.

The *Lake Simcoe watershed* has experienced a wide range of interrelated pressures affecting the watershed – excessive nutrients, pollutants, *invasive species*, impacts of climate change, and increasing pressures from human activities.

The last four decades of research, monitoring, and scientific studies show how human-related activities including urban and rural uses, recreation and agriculture, have impaired the health of the *Lake Simcoe watershed* ecosystem through direct and indirect changes. The threats include:

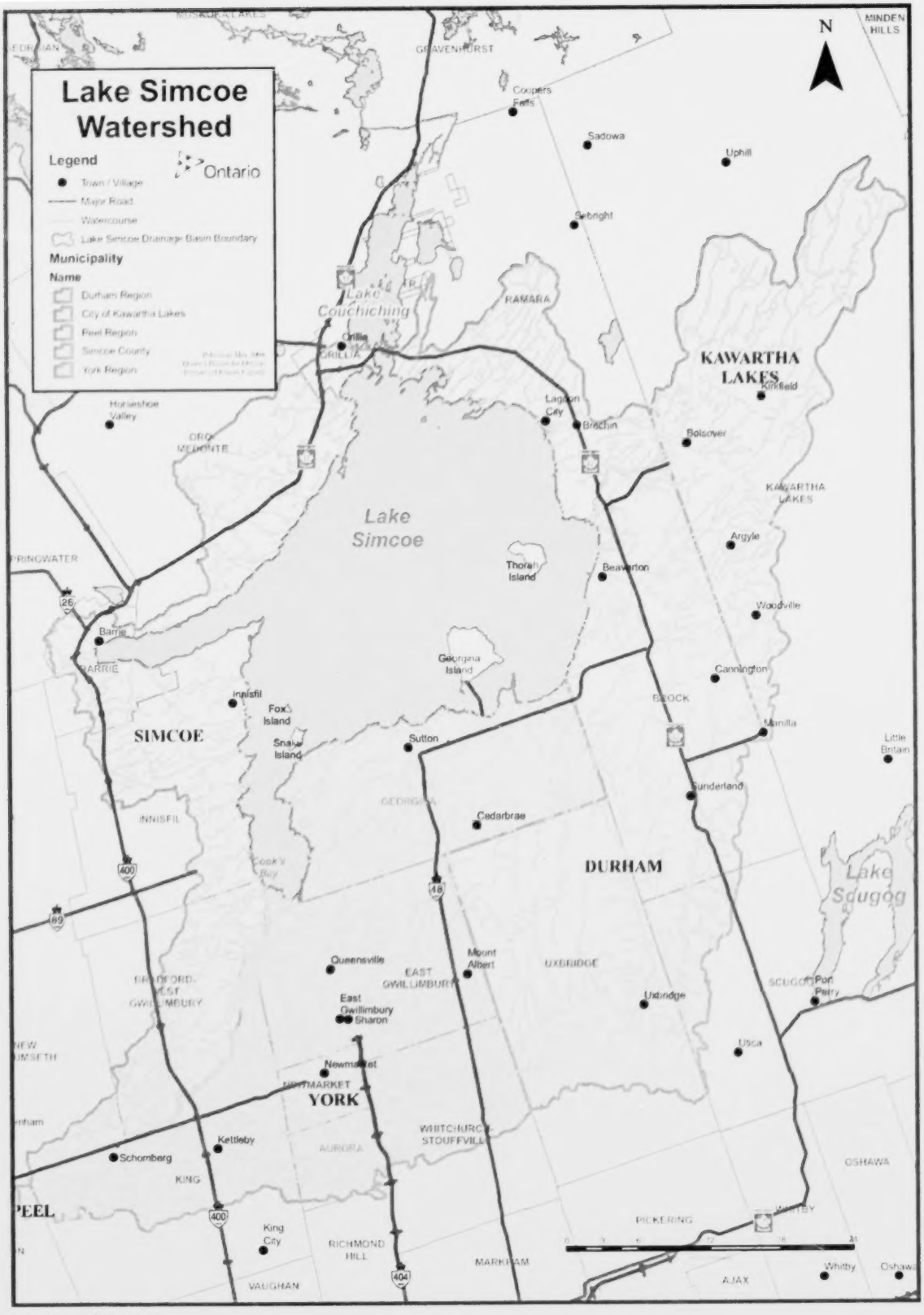
- degraded water quality due to excessive nutrients such as phosphorus, contaminants, and pathogens that directly or indirectly affect the health of the ecosystem and the suitability of the water for recreational uses;
- newly introduced species such as zebra mussels that compromise the condition and equilibrium of the ecosystem and its resistance to other stresses;
- emerging threats such as climate change that also affect the condition, equilibrium, and resistance of the ecosystem;

Stresses from Human Activities

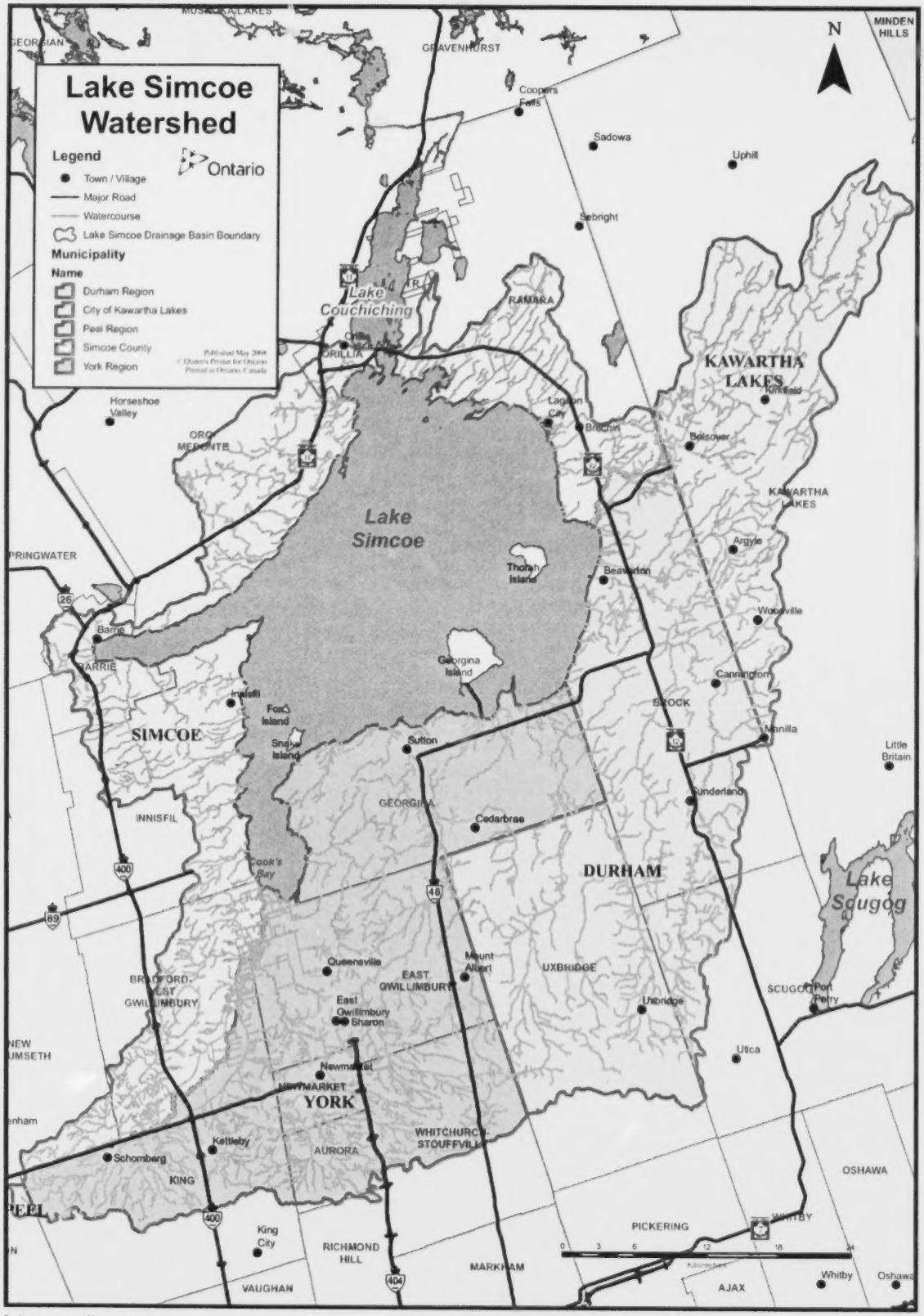
Human activities have influenced the *Lake Simcoe watershed* ecosystem for more than 200 years and *development* has changed the natural landscape, the composition and quality of vegetative cover and interfered with natural *ecological functions. Wetlands* and natural areas have been lost, fragmented and/or degraded. The loss of natural areas has reduced greenspace and the biodiversity of the watershed, and has had negative impacts on the quality and quantity of water and quality of life.

Stresses from Phosphorus

Phosphorus is a key water quality concern in Lake Simcoe. While some phosphorus is required to support a healthy aquatic ecosystem, too much of this nutrient leads to excessive growth of plants. When these plants decay, oxygen that is required by fish and other aquatic species is depleted. Lake trout and whitefish reproduction has been virtually eliminated in Lake Simcoe. Their continued existence in the lake is almost entirely due to a hatchery stocking program. Although reductions in phosphorus have led to improved oxygen conditions in the lake, the improvements are not yet sufficient for the fish to sustain themselves naturally.



Lake Simcoe Watershed



Lake Simcoe Watershed

- loss and fragmentation of sensitive natural areas and habitat, such as shorelines, *wetlands*, streamside areas, or forested lands, directly affecting the health of the watershed ecosystem;
- water quantity changes that alter ecosystem function, the quality and availability of aquatic habitats, as well as the amount of water available for human uses; and
- other human pressures such as fishing and other resource uses that may remove key resources from the ecosystem beyond its capacity to replenish itself.

Some of these challenges are not unique to this lake, but Lake Simcoe has particular characteristics that need a targeted plan to address its specific needs.

Invasive Species

Invasive species are one of the greatest threats to Ontario's waters, *wetlands* and *woodlands*. A variety of aquatic *invasive species* have been found in the *Lake Simcoe watershed*, several of which include the zebra mussel, round goby, spiny water flea, purple loosestrife and Eurasian watermilfoil. Many of the aquatic species found in Lake Simcoe have spread from the Great Lakes through activities such as boating, angling, and other pathways.

Terrestrial *invasive species* including giant hogweed, garlic mustard and others are introduced through ornamental gardening, or through the import of seeds in soil, or the treads of boots and tires.

Climate Change

In the winter of 2001-2002, Lake Simcoe did not completely freeze over. While not every winter will be mild, scientists say that we can expect more dramatic swings in weather patterns due to climate change.

Ontario is working on a comprehensive set of programs to reduce the province's greenhouse gas emissions that contribute to climate change. But the effects of climate change are already being observed, requiring adaptive measures to minimize impacts.

General Authority

As part of the government's overall strategy to protect and restore the ecological health of the *Lake Simcoe watershed*, the Lake Simcoe Protection Act, 2008 received Royal Assent on December 10, 2008. This Act provides the authority for the establishment of and amendments to a Lake Simcoe Protection Plan.

This Plan generally applies to the *Lake Simcoe watershed*. A regulation under the Act will provide a description of the boundaries of the watershed. The Act also allows policies in relation to research and monitoring to apply to areas outside of the watershed for the purpose of determining whether activities in those areas directly or would directly affect the ecological health of the *Lake Simcoe watershed*. Future amendments to the Plan could apply certain policies to areas outside of the watershed.

Objectives of the Plan

The objectives of the Plan as set out in the Lake Simcoe Protection Act, 2008 are to:

- protect, improve or restore the elements that contribute to the ecological health of the *Lake Simcoe watershed*, including, water quality, hydrology, key natural heritage features and their functions, and key hydrologic features and their functions;
- restore a self-sustaining coldwater fish community in Lake Simcoe;
- reduce loadings of phosphorus and other nutrients of concern to Lake Simcoe and its tributaries;
- reduce the discharge of pollutants to Lake Simcoe and its tributaries;
- respond to *adverse effects* related to *invasive species* and, where possible, to prevent

invasive species from entering the *Lake Simcoe watershed*;

- improve the *Lake Simcoe watershed's* capacity to adapt to climate change;
- provide for ongoing scientific research and monitoring related to the ecological health of the *Lake Simcoe watershed*;
- improve conditions for environmentally sustainable recreational activities related to Lake Simcoe and to promote those activities;
- promote environmentally sustainable land and water uses, activities and *development* practices;
- build on the protections for the *Lake Simcoe watershed* that are provided by provincial plans that apply in all or part of the *Lake Simcoe watershed*, including the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan, and provincial legislation, including the Clean Water Act, 2006, the Conservation Authorities Act, the Ontario Water Resources Act and the Planning Act; and
- pursue any other objectives set out in the Lake Simcoe Protection Plan.

Principles to Guide Our Efforts

The following principles will guide efforts – both individual and collective – to protect and restore the ecological health of the *Lake Simcoe watershed*.

Ecosystem Approach

An ecosystem approach will be used, one that treats Lake Simcoe and its watershed as an interconnected system. The ecosystem approach uses best available science, considers cumulative impacts, and promotes watershed and subwatershed approaches. It recognizes that a healthy environment provides the foundation for healthy communities and a healthy economy.

Precautionary Approach

Caution will be exercised to protect the environment when there is uncertainty about environmental risks.

Adaptive Management Approach

Continuously improve and adapt our approaches, policies and management by incorporating new knowledge and innovative design, practices and technology from ongoing science and monitoring. This will allow the Plan to evolve and improve over time based on new science and implementation experience.

Shared Responsibility

Effective implementation of the Lake Simcoe Protection Plan will require collaboration among the Province, First Nations and Métis communities, municipalities, the Lake Simcoe Region Conservation Authority, agricultural, commercial, and industrial sectors and small businesses, environmental groups, and the general public.

Cost-effectiveness

The Plan must be implemented in a cost-effective manner.

Priorities of the Plan

While this Plan speaks in detail about the initial actions to be taken, it recognizes that protecting and restoring the ecological health of the *Lake Simcoe watershed* will be a long-term undertaking; initial strategies will evolve over time based on science and experience in implementing the Plan.

In the near-term the Plan will focus on the issues most critical to the health of Lake Simcoe including:

- improving water quality, including reducing loadings of phosphorus into the lake;
- maintaining water quantity;
- improving the health of the ecosystem by protecting and rehabilitating important areas, such as vegetated buffers along shorelines, tributaries and *wetlands*; and
- addressing impacts of *invasive species* and climate change.

As the understanding of issues such as climate change improves through research and monitoring, we will be better prepared to deal with future impacts. Ongoing monitoring and research will also help us detect changes in watershed conditions over time and measure the effectiveness of our management efforts.

How to Read this Plan

The Plan consists of targets, *indicators* and policies organized into chapters that address the following policy themes: aquatic life, water quality, water quantity, shorelines and natural heritage, other threats and activities (including *invasive species*, climate change and recreational activities) and implementation. Each chapter provides context and explains the intent of the policies. Abbreviated terms are defined in the List of Acronyms. Terms in *italics* are defined in the Glossary.

This Plan should be read in conjunction with relevant provincial policies, plans and Acts, including the Provincial Policy Statement, 2005, the Greenbelt Plan, the Growth Plan for the Greater Golden Horseshoe, the Oak Ridges Moraine Conservation Plan, the Clean Water Act, 2006, the Ontario Water Resources Act, the Conservation Authorities Act, the Environmental Protection Act, the Public Lands Act, and the Planning Act. These plans and Acts apply to all or part of the *Lake Simcoe watershed* and provide specific policies on certain matters.

Greenbelt Plan

The Greenbelt protects 1.8 million acres of environmentally sensitive and agricultural lands in the Greater Golden Horseshoe from urban *development* and sprawl.

The Greenbelt Plan encompasses the existing Niagara Escarpment Plan and Oak Ridges Moraine Conservation Plan as well as the new Protected Countryside. The Plan covers approximately 58% of the land area of the *Lake Simcoe watershed*.

The Greenbelt Plan works in conjunction with the Growth Plan for the Greater Golden Horseshoe, which directs future growth will occur.

Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe provides a 25-year vision and strategic direction for managing growth in the Greater Golden Horseshoe.

The Growth Plan encourages the development of more compact and complete communities. This type of development will make more efficient use of infrastructure and protect important natural spaces and agricultural lands from urban sprawl.

Municipalities are required to bring their official plans into conformity with the Growth Plan by June 2009. The Lake Simcoe Protection Plan will work in concert with and allow for the completion of the Growth Plan conformity process.

This Plan, in conjunction with the other plans and Acts mentioned above, express the Province's interest and direction with regard to protecting the ecological health and environmental sustainability of the *Lake Simcoe watershed*. As provided for in the Lake Simcoe Protection Act, 2008 subject to any policies in this Plan describing how to resolve conflicts between provincial policies or plans, if a conflict arises between a designated policy in this Plan and a provincial policy of another provincial plan the provision that gives the greatest protection to the ecological health of the *Lake Simcoe watershed* prevails.

Clean Water Act, 2006

The Clean Water Act, 2006 protects drinking water at the source, as part of an overall commitment to safeguard human health and the environment through a multi-barrier approach. The legislation sets prevention as its fundamental principle. A key focus of the legislation is the preparation of locally-developed source protection plans. The intent is for communities to use a science-based approach to protect both the quality and quantity of drinking water supplies.

Legal Effect of the Plan Under Lake Simcoe Protection Act, 2008

The Lake Simcoe Protection Act, 2008 includes provisions for different types of policies. Some have a legal effect and others do not. The policies in the Plan are grouped into three categories:

Designated Policies (Coded as "DP")

The Act requires that decisions under the Planning Act or the Condominium Act, 1998 or decisions related to a prescribed instrument conform with the applicable designated policies in the Plan. Comments, submissions and advice of a public body must also conform with the applicable designated policies.

The Act also requires that the above decisions have regard to any other applicable policies of the Plan. However, the Plan does not contain any policies to which this "have regard to" standard applies. Rather, all policies in the Plan that apply to the above decisions are designated policies, requiring application of the "conform with" standard.

At the end of this Plan is a Schedule which sets out the designated policies in the Plan and the type of decision to which a designated policy applies.

(1) Designated Policies Affecting Decisions under the Planning Act and Condominium Act, 1998

The Act requires decisions under the Planning Act or the Condominium Act, 1998, to conform to the applicable designated policies in the Plan. The Act also requires that municipalities bring their official plans into conformity with the applicable "designated policies" at their five-year official plan review.

(2) Designated Policies Affecting Decisions In Relation To Prescribed Instruments

The Ministry is intending to make a regulation under section 27 of the Act to prescribe the following instruments as "prescribed instruments"

- sewage works approvals under section 53 of the Ontario Water Resources Act;
- section 28 permits under the Conservation Authorities Act; and
- works permits under Regulation 453/96 and Regulation 975 under the Public Lands Act.

The Act requires that all decisions to create or amend a prescribed instrument conform with the applicable designated policies in the Plan. The Act allows the Plan to require that a prescribed instrument be amended by a specified date to conform with the applicable designated policies in the Plan.

Policies governing Monitoring By Public Bodies (Coded as "M")

If a public body is identified in the Plan as being responsible for the implementation of a policy governing monitoring, the Act requires the public body to comply with any obligations imposed on it by the monitoring policy.

Policies In Relation to Strategic Actions (Coded as "SA")

This Plan includes many other types of policies that are equally essential to achieving the Plan's objectives but are not given legal effect by the Act, such as policies respecting stewardship programs, pilot programs, research, outreach and education, and, in several instances, policies that specify actions for public bodies. Under the Act, these policies are not legally enforceable, nor do they create legal duties. Rather, accountability for these policies could be achieved through methods other than legal mechanisms, such as through the periodic progress reports on the Plan that are mandated under the Act.

No matter is being specified in the Plan for the purpose of paragraph 5 of subsection 5 (2) of the Act. Therefore, there is nothing in this Plan that limits the ability of decision makers on planning applications to adopt policies more restrictive than the provisions in the Plan unless doing so would conflict with any of the policies or objectives of the Plan.

Transition

Section 27 of the Lake Simcoe Protection Act, 2008 provides authority for a regulation addressing transitional matters. The purpose of this regulation is to set out how the applicable designated policies in the Plan affect applications, matters or proceedings that were commenced prior to the Plan coming into effect but not yet disposed of.

Generally, the Plan would apply to applications, matters or proceedings under the Planning Act and Condominium Act, 1998 or in relation to a prescribed instrument commenced after the date the Plan comes into effect.

For certain applications, matters or proceedings that were commenced before the Plan comes into effect, the regulation may require that some or all of the applicable designated policies be applied to the proposal. The regulation would select such matters based on a number of criteria, including the location, scope, scale, type of *development* or the timing the proposal commenced.

Chapter 2
Building on Past Actions

Cooperative efforts and actions by watershed partners have already started to bring about improvements in the health of Lake Simcoe. For example, levels of *dissolved oxygen* in the bottom waters of the lake have increased and there is some evidence of natural reproduction in the coldwater fish community.

There have been longstanding partnership efforts to protect the health of Lake Simcoe; some of these are described below.

Field studies of aquatic life

Lake Simcoe Environmental Management Strategy (LSEMS)

The LSEMS program began in 1990 with the goal of restoring a self-sustaining coldwater fishery in Lake Simcoe by improving water quality. It was a multi-agency partnership involving the MOE, MNR, MAFRA, MMAH, MEI and the LSRCA. More recently watershed municipalities, the Chippewas of Georgina Island First Nation, Environment Canada and Fisheries and Oceans Canada had joined the partnership. The LSRCA chaired and led the partnership.

The LSEMS program focused mainly on controlling and reducing phosphorus inputs into Lake Simcoe.

LSEMS progress

Over its lifetime, LSEMS made steady progress:

- Conducted monitoring and research on key environmental issues in the *Lake Simcoe watershed*;
- Established lake water quality targets for phosphorus and *dissolved oxygen*; and
- Undertook environmental rehabilitation projects to reduce the amount of phosphorus entering the lake from urban, rural and agricultural areas.

Intergovernmental Action Plan(2006)

To address common interests in environmental protection, *development* certainty, and effective and sustainable governance, the Province partnered with the 19 municipalities in Simcoe County, including Barrie and Orillia, to produce the Intergovernmental Action Plan (IGAP).

Assimilative Capacity Study for Lake Simcoe

One of the key initiatives of the IGAP was the Assimilative Capacity Study (ACS) for the *Lake Simcoe watershed*. The ACS was developed in collaboration with conservation authorities, federal and provincial governments, municipalities, and other stakeholders.

The ACS produced a modelling tool to inform decision-makers of the potential impacts of existing and planned land use activities on water quality. The ACS also developed a process for establishing subwatershed loading targets.

Agricultural and Community Actions

Farmers in the *Lake Simcoe watershed* have made significant progress toward using improved agricultural practices and technologies. These include buffer strip creation along *riparian areas*, improved manure storage facilities and technologically advanced cropping systems. Some of this work has been accomplished by individual farmers on their own, and some has been done through formal stewardship programs such as the Environmental Farm Plan Program, the Lake Simcoe Water Quality Improvement Program, the Ontario Stewardship Program and a range of local, provincial, and federal-provincial cost-share programs.

In other areas of the watershed, rural landowners, community groups and individuals have participated in a variety of stewardship, education and outreach programs that have reduced streambank erosion, improved *fish habitat*, increased natural cover and encouraged sustainable actions throughout the watershed.

Provincial support for agricultural and community initiatives

- The Province has provided financial and technical support to agricultural and community initiatives through the Environmental Farm Plan, the Lake Simcoe Farm Stewardship Initiative, the Community Fisheries and Wildlife Involvement Program, the Managed Forest and Conservation Land Tax Incentive Programs, the Ontario Stewardship Program and other conservation and green community programs.
- Through the Ontario Stewardship program, the Province provides support to county-based stewardship councils that represent the broad-base of landowner and community interests in their areas. The Province facilitates partnerships and levers financial and in-kind resources for a wide variety of stewardship, education and outreach projects.

Municipalities and the Lake Simcoe Region Conservation Authority

Municipalities have made significant investments that have had a positive impact on the lake. These include *sewage treatment plant* upgrades, stormwater management retrofits, aquatic habitat improvement and septic system decommissioning, among others.

The LSRCA has led improved stormwater management strategies for major municipalities around the lake. As a result, since 2000, all new *developments* around the lake have met or exceeded the highest provincial environmental design standards for stormwater management.

Municipal phosphorus reductions

Under the Lake Simcoe Water Quality Improvement Program, municipalities have reduced phosphorus inputs by:

- replacing inadequate private septic systems
- retrofitting stormwater ponds
- undertaking stream bank erosion control projects
- inspecting sewage treatment facilities regularly and reporting effluent concentrations monthly
- decommissioning 2,200 septic systems along the Lake Simcoe shoreline .

Lake Simcoe Science Advisory Committee

The Lake Simcoe Science Advisory Committee was appointed in February 2008 to advise the Province on how best to protect and improve the *Lake Simcoe watershed* ecosystem. The 11-members committee is comprised of experts in the water quality and ecology of *lakes* and their watersheds, the impacts of surrounding urban and agricultural land uses and *invasive species*, and traditional ecological knowledge. See Appendix I for list of members. The committee is mandated to help ensure that the Lake Simcoe Protection Plan would be based on the best available science. Specifically, it was asked by the provincial government to use its expertise and its knowledge of current Lake Simcoe science to:

- evaluate the present state of the lake and its watershed;
- consider pressures on the system now and in the future;
- identify ecosystem features that need protection; and
- advise on appropriate management methods and a monitoring plan to support the protection strategy.

The Committee was asked to answer a series of questions related to its examination of the ecological health of Lake Simcoe and its watershed.

Lake Simcoe Stakeholder Advisory Committee

In May 2008, the Province appointed a stakeholder advisory committee to gain input from the wide range of interests around Lake Simcoe. The 23-member committee includes representatives from: First Nations, municipalities, farmers and the agricultural sector, tourism, fisheries, business, developers, residents, cottagers and environmentalists. See Appendix II for list of members.

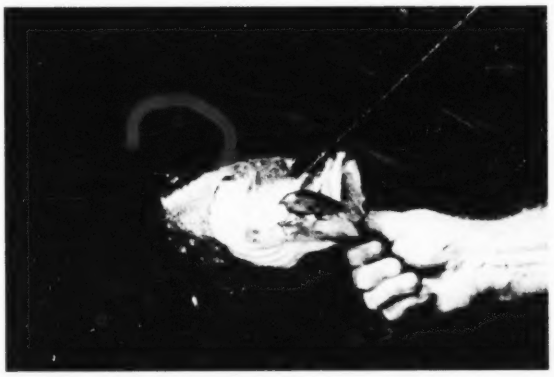
The committee has provided input and advice to the government on protecting Lake Simcoe, recommending approaches to improve the long-term future of the watershed, as well as considering the impacts of potential courses of action on the watershed community. Another key function is to provide a linkage with the broader community and a forum for exchanging information about the watershed and proposed actions to protect it.

Chapter 3
Aquatic Life

CONTEXT

Healthy ecosystems, including healthy aquatic communities, provide significant social and economic benefits, contributing to a high quality of life for the people of Ontario. Currently, aquatic communities and habitats in Lake Simcoe are threatened by degraded water quality, unsustainable land uses, and pressures from other human activities.

Improving and restoring the health of aquatic life within the *Lake Simcoe watershed* will depend on successfully implementing the policies of this chapter, as well as those related to water quality, water quantity, shorelines and natural heritage, *invasive species*, and climate change that are outlined in the other chapters of this Plan. This Plan would seek to improve habitats for aquatic life and help to protect and restore aquatic communities throughout the watershed by improving overall management.



Large Mouth Bass

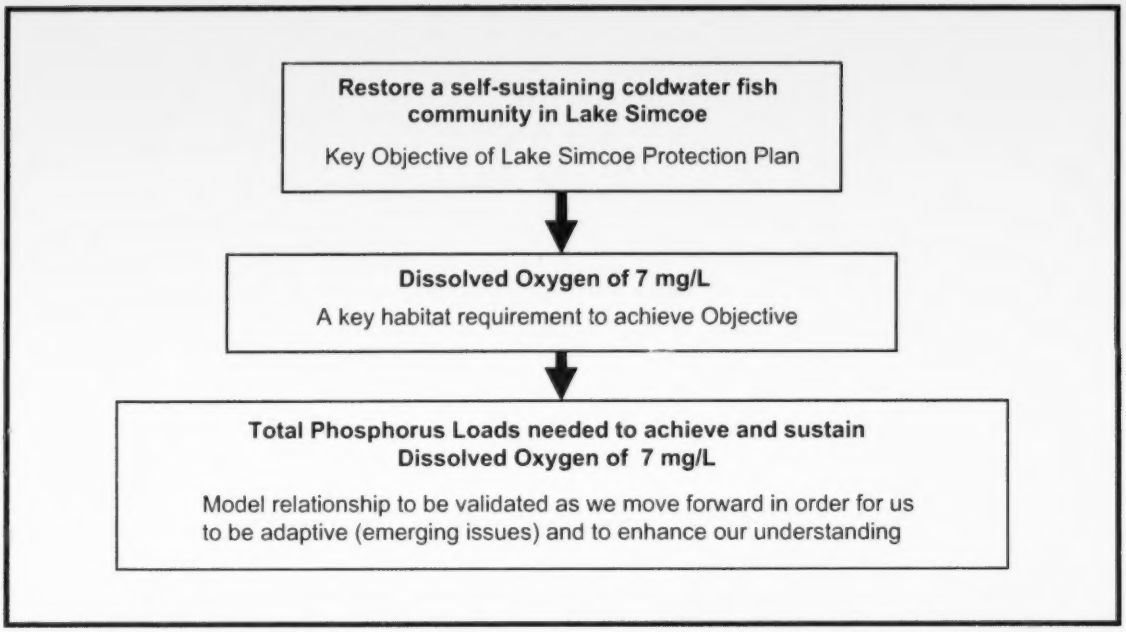
The health of the coldwater fish community, specifically the lake trout, is a good indicator of environmental quality and the overall health of the aquatic ecosystem. The health of the warm-water and tributary fish communities and their *ecological functions* are also important in determining how well the aquatic ecosystem is functioning.

Collection of Lake Whitefish Eggs

Excessive phosphorus loads to the lake from changes in watershed land use and associated activities is perhaps the most significant stressor. Excess phosphorus has led to the depletion of *dissolved oxygen* in deep waters of the lake that provide essential habitat for coldwater species such as lake trout and lake whitefish.

The fact that Lake Simcoe is the most intensively fished inland lake in Ontario may add significant stress to the aquatic communities of the lake. Properly managing these additional pressures will be key to restoring a self-sustaining coldwater fish community while maintaining a sustainable recreational fishery.

This Plan would support the development of aquatic and fish community objectives specific to the *Lake Simcoe watershed* that would be used to inform land use and watershed planning and management activities. The Plan would support the review of Lake Simcoe's cold-water fish stocking program to ensure that stocking targets continue to assist in restoring a self-sustaining coldwater fish community. It would also support an evaluation of the ecological and socioeconomic value of angling and other recreational activities, as well as the impacts of these activities.



Key assumptions between the relationship of attaining the Plan objective of restoring a self-sustaining coldwater fish community in Lake Simcoe, dissolved oxygen habitat requirements and the total phosphorus loads needed to achieve the dissolved oxygen requirements.

Key Facts

- 35 rivers flow into Lake Simcoe, including the Holland River, Black River, Beaver River, Pefferlaw River and Uxbridge Brook, which in total comprise almost 4,000 kilometres of streams.
- Lake Simcoe supports a wide range of aquatic animals including:
  - coldwater fish such as lake trout and lake whitefish;
  - warm-water fish such as bass and perch;
  - invertebrates including crayfish, insects, snails and clams; and
  - amphibians and reptiles.
- 65 species within the watershed ecosystem are rare and 33 of these are species at risk including the Jefferson salamander and the spotted turtle.
- Because current conditions do not support the natural production of lake trout and whitefish, a hatchery stocking program is in place that annually releases approximately 100,000 yearling lake trout and 140,000 fall fingerling whitefish to support rehabilitation of these native species.
- Since 2001, there has been evidence that some reproduction of lake trout and lake whitefish increased, consistent with improvements in the water quality of their coldwater habitats.
- Degraded water quality is believed to have been the primary cause of population failures of lake trout and other coldwater fish species.

Target:

- *Dissolved Oxygen* of 7 mg/L

Indicators:

- Natural reproduction and survival of native aquatic communities
- Presence and abundance of key sensitive species
- Shifts in cold, warm and tributary fish communities

Policies:

3.1-SA By the end of 2010, the MNR will develop Fish Community Objectives for Lake Simcoe and its tributaries. This process will be done in collaboration with other provincial ministries, First Nations and Métis communities, the LSRCA, the Lake Simcoe Fisheries Stakeholder Committee, key stakeholders and the general public. These objectives will be used by public bodies to inform decisions relating to the management of land, water and natural resources and increase the resilience of Lake Simcoe's aquatic community to future impacts of *invasive species* and climate change.

3.2-SA By the end of 2010, the MNR will complete, using an adaptive management approach, a review of its coldwater species stocking program, and will establish new stocking targets. This review will be done in collaboration with First Nations and Métis communities, the Lake Simcoe Fisheries Stakeholder Committee, and other key stakeholders.

3.3-SA Beginning in 2010, the MNR, in collaboration with provincial ministries, First Nations and Métis communities, the Lake Simcoe Fisheries Stakeholder Committee, and other key stakeholders, will prepare a socioeconomic evaluation of the monetary and ecological value and impact of the aquatic resources within the *Lake Simcoe watershed*.

3.4-SA Beginning in 2010, the MNR in collaboration with the MOE, DFO, LSRCA and First Nations and Métis communities will establish baseline mapping of aquatic habitats in Lake Simcoe and its tributaries. The MNR will regularly review and update this information and include where feasible shoreline and in-water *developments* including in-water structures, tributary barriers, channelizations, and hardened shorelines.

3.5-SA The MNR, in collaboration with the MOE and other partners, will conduct research projects on the aquatic communities of Lake Simcoe and its tributaries. The focus of the research will be on filling knowledge gaps associated with the aquatic communities in the watershed. The research projects will be identified and undertaken based on an adaptive management approach and will be integrated with other programs in the watershed. The focus of initial research projects may include:

a. production dynamics and ecological function research tied to the coldwater fish community; or

b. an evaluation of the impacts of nearshore water quality, nutrients, *primary production dynamics*, invading species and climate change on the fish community.

3.6-M The MNR shall work collaboratively with partners to develop and implement an annual aquatic community monitoring program for Lake Simcoe and its tributaries. The program shall build upon existing aquatic community monitoring programs undertaken by the MNR, the MOE and the LSRCA. This program shall be based on an adaptive management approach, and may be altered from time to time to respond to changing environmental conditions and management needs. The components of the annual monitoring program may include:

a. enhanced surveys of winter and open-water anglers;

b. fish diet and growth studies;

c. expanded monitoring of nearshore and offshore fish communities;

d. increased monitoring of fish biodiversity;

e. monitoring of *invasive species; and*

f. monitoring of *benthic* invertebrates.

Chapter 4
Water Quality

CONTEXT

Clean water is critical to both human and ecological well-being.

Degraded water quality has historically placed significant stress on Lake Simcoe, its tributaries and the life they support. Stresses from urban, rural, recreational and agricultural activities have changed the landscape, vegetation, and *ecological functions* of the watershed and contributed to increases in the inputs of pollutants. Human activities in the watershed have also affected water quantity which can, in turn, significantly affect water quality. The primary stressors that degrade water quality include:

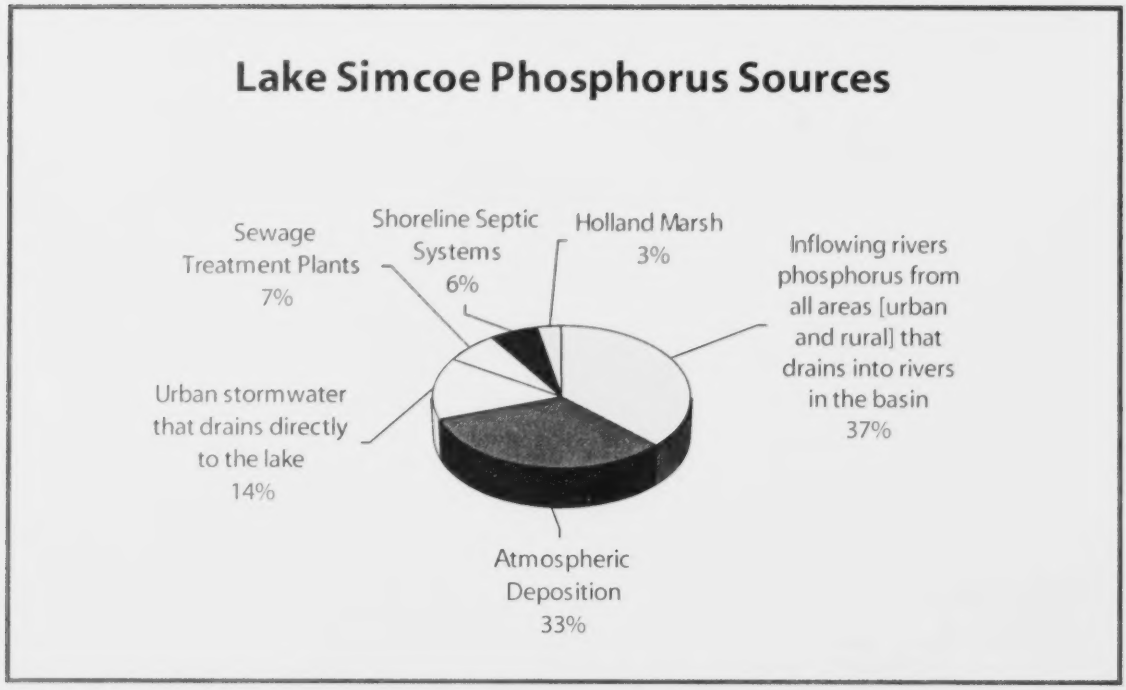
- excessive nutrients, primarily phosphorus;
- pollutants and contaminants, such as heavy metals, organic chemicals, sediments, and chlorides; and
- pathogens, such as *E. coli*.

In addition to these stressors emerging issues such as climate change and *invasive species* can also directly and indirectly impact water quality. Although the extent of the impact of climate change on water quality is uncertain, it is projected that it will influence the frequency, intensity, extent and magnitude of existing problems. Some examples of climate change impacts on water quality may include:

- variations in stream flow regimes and lake levels affecting aquatic biota and habitats;
- increases in sediment, phosphorus loading, and concentrations of contaminants;
- increases in wind and flood transportation of nutrients, sediments and contaminants;
- drinking water odour and taste problems, as water intakes are subjected to increases in algae concentrations; and
- impacts to the nearshore area of *lakes* that may exacerbate the bioaccumulation of toxics by fish.

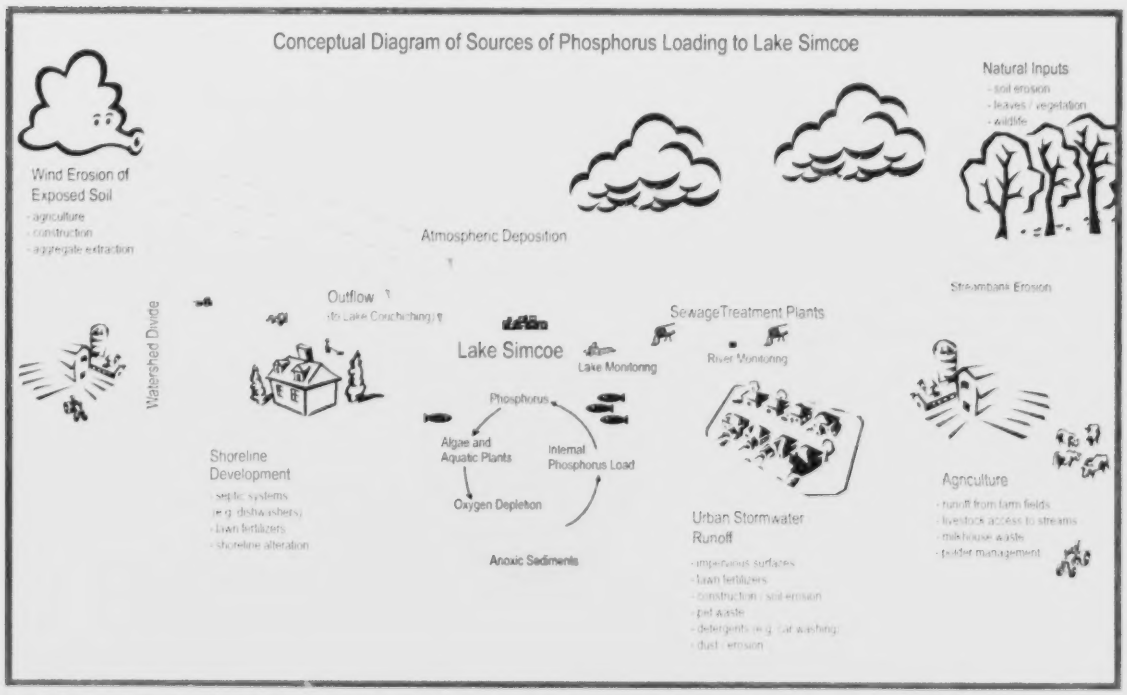
Litter along stream shoreline

Algae bloom

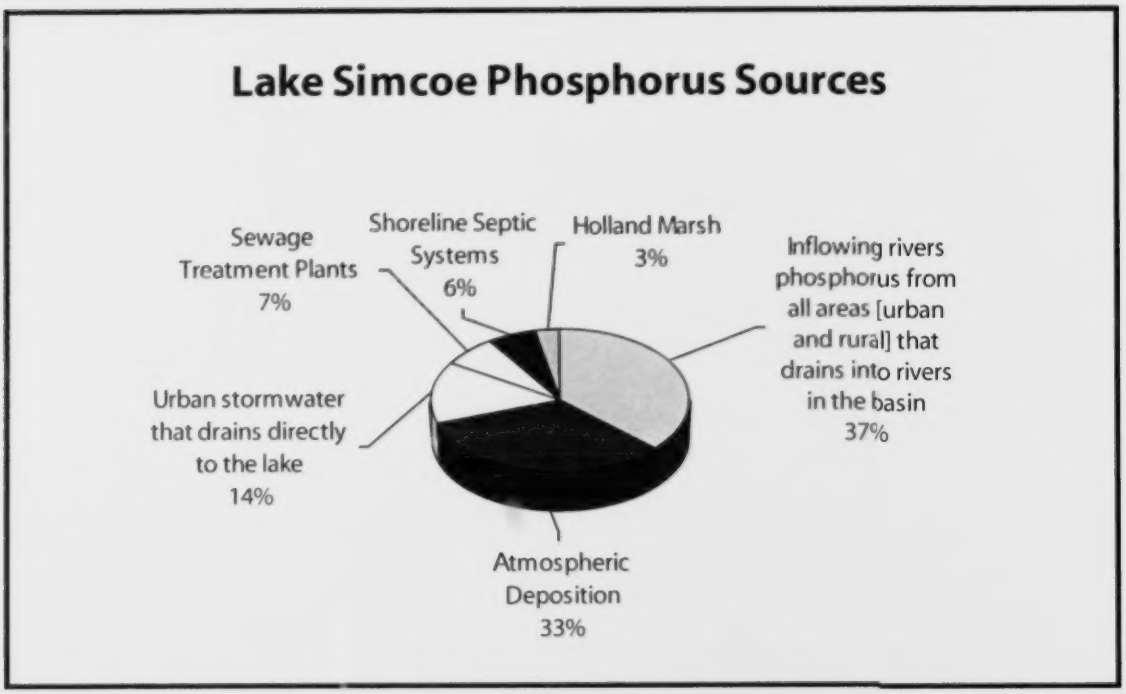


Lake Simcoe Phosphorus Sources

J.G. Winter, M.C. Eimers, P.J. Dillon, L.D. Scott, W.A. Scheider & C.C. Willox (2007) Phosphorus inputs to Lake Simcoe from 1990 to 2003: Declines in tributary loads and observations on lake water quality. Journal of Great Lakes Research 33:381-396



Conceptual diagram of sources of phosphorus loading to Lake Simcoe and relationship between phosphorus and dissolved oxygen



Lake Simcoe Phosphorus Sources[1]

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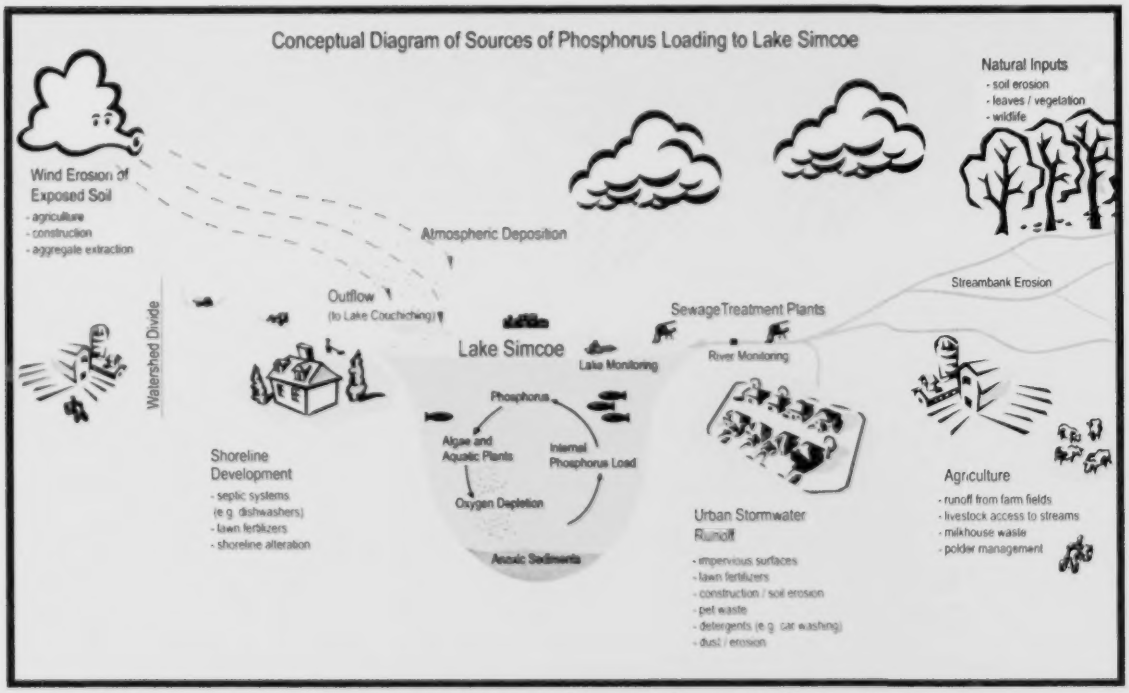


Conceptual diagram of sources of phosphorus loading to Lake Simcoe and relationship between phosphorus and dissolved oxygen.

Excessive phosphorus has been the most significant cause of the water quality impairment in Lake Simcoe and its tributaries. It leads to the excessive growth of plants and algae in the lake, which contributes to the depletion of *dissolved oxygen* in the deep waters of the lake and degradation of the critical habitat of coldwater species. Between 1998 and 2004, phosphorus loadings to the lake averaged 67 metric tonnes per year with a low of 53 and high of 76 tonnes per year. The primary sources of excess phosphorus to Lake Simcoe and its tributaries include:

- effluent from *sewage treatment plants* serving urban communities and industry in the watershed;
- stormwater runoff from urban areas within the watershed;
- land use activities in rural, agricultural, urban and shoreline areas;
- septic systems; and
- atmospheric deposition of phosphorus in airborne dust caused by wind erosion from *site alteration* activities, construction sites, agricultural fields and *mineral aggregate operations*.

One of the biggest water quality challenges in Lake Simcoe is to reduce phosphorus loads to a level at which *dissolved oxygen* conditions could support a self-sustaining coldwater fish community. Based on estimates from current models, phosphorus loadings would need to be reduced to a level of approximately 44 tonnes per year to achieve the proposed *dissolved oxygen* target of 7 milligrams per litre (mg/L).

The Province set new interim limits on *sewage treatment plants* and stormwater facilities around Lake Simcoe targeting phosphorus. These limits, set out in Ontario Regulation 60/08 under the Ontario Water Resources Act, seek to control the phosphorus entering Lake Simcoe from specific municipal and industrial sources by:

- limiting phosphorus discharges from municipal and industrial *sewage treatment plants;*
- stopping new *sewage treatment plants* that would discharge phosphorus from being established; and
- making stormwater management facilities serving new *development* meet the highest design standards.

This regulation applies from April 1, 2008, to March 31, 2009, and is intended to protect Lake Simcoe's water quality until more permanent policies are developed such as those in this Plan.

The policies in this chapter are intended to identify and address sources that cause water quality impairment. In many cases, activities may address more than one water quality parameter or ecosystem stressor. The Plan would impose stricter controls with respect to *sewage treatment plants*, stormwater management, septic systems and construction activities, and encourage better management practices for agricultural, rural and urban communities.

To achieve ambitious reductions in phosphorus loadings, there would need to be reduced loadings from all sources that contribute to excess phosphorus throughout the watershed. This Plan would also support a coordinated, adaptive management, and phased approach to reducing excess phosphorus through the development of a phosphorus reduction strategy for the *Lake Simcoe watershed*.

Key Facts

- Work done by community partnerships helped reduce annual total phosphorus loads to the lake to an average of 67 tonnes per year from 1998 to 2004 from more than 100 tonnes per year estimated to have been entering the lake from all sources during the early 1990s.
- Tributaries flowing into Lake Simcoe that currently are known to exceed the Provincial Water Quality Objectives for phosphorus include the East and West Holland, North Schomberg, Upper Schomberg, Maskinonge and Black Rivers as well as Tannery and Whites Creeks.
- A key indicator of improving water quality in recent years is the increase in deep-water *dissolved oxygen* concentrations during late summer to more than 5 mg/L from less than 3 mg/L in most years during the 1980s and early 1990s.
- Other pollutants of current or emerging concern in the watershed include chloride, toxic metals (e.g. chromium, aluminum, cadmium), organic chemicals, and pharmaceuticals.
- Based on Ontario's sport fish contaminant monitoring data used in the Guide to Eating Ontario Sport Fish, contaminant levels in sport fish (e.g., walleye, whitefish and carp) have decreased or remained stable over the last 10 to 15 years.

Targets:

- Reduce phosphorus loadings to achieve a target for *dissolved oxygen* of 7 mg/L in the lake (long-term goal currently estimated at 44 tonnes per year)
- Reduce pathogen loading to eliminate beach closures
- Reduce contaminants to levels that achieve Provincial Water Quality Objectives or better

Indicators:

- To evaluate progress in achieving the water quality-related objectives of the Plan, the following are *indicators* of environmental health relating to water quality in Lake Simcoe and its tributaries:
    - *Dissolved oxygen* in Lake Simcoe
    - Total phosphorus
        - concentration
        - loading
    - Pathogens
        - beach closures
    - Other water quality parameters
        - chlorides
        - other nutrients (e.g. nitrogen)
        - total suspended solids
        - heavy metals
        - organic chemicals

Sewage Treatment

4.1-DP For a proposed *settlement area* expansion, establishment of a new *settlement area* or a *development* outside of the *settlement area* that requires the expansion of an existing *sewage treatment plant* or the establishment of a new *sewage treatment plant*, an environmental assessment of the undertaking shall be completed or approved prior to granting an approval for the proposal.

4.2-DP Within one year of the date the Plan comes into effect, the *Director* shall amend the approvals for all *sewage treatment plants* in the *Lake Simcoe watershed* to include conditions that would accomplish the following:

a. require compliance with the *Average Concentration Limit* for total phosphorus specified in the approval

   i. at a minimum on a monthly basis or,

   ii. in the case of a *sewage treatment plant* with a seasonal discharge, at a minimum on a monthly basis during the lagoon discharge season;

b. require all owners of *municipal sewage treatment plants* to conduct an initial characterization of effluent using a manner specified by the *Director* within five years of the amendment; and

c. require a report back to the *Director* within six months of the initial characterization of effluent being completed.

4.3-DP This policy comes into effect on the date section 6 of Ontario Regulation 60/08 is revoked. The *Director* shall not issue an approval for the establishment of a *municipal sewage treatment plant* in the *Lake Simcoe watershed* unless the approval is for:

a. the replacement of an existing *municipal sewage treatment plant*; or

b. a *sewage treatment plant* that will provide:

   i. sewage services to a *development* that is on partial services, or

   ii. *sewage* services to a *development* where one or more *subsurface sewage works* or *subsurface sewage systems* are failing.

4.4-DP This policy comes into effect on the date section 6 of Ontario Regulation 60/08 is revoked. The *Director* shall not issue an approval for the establishment of a new *non-municipal sewage treatment plant* in the *Lake Simcoe watershed* unless the applicant can demonstrate to the *Director's* satisfaction that the establishment of the new *non-municipal sewage treatment plant* will result in a net reduction of phosphorus loadings to the watershed from baseline conditions for the undertaking that will be serviced by the *non-municipal sewage treatment plant*.

4.5-SA Within five years of the date the Plan comes into effect, municipalities, in collaboration with the LSRCA, will prepare and implement comprehensive stormwater management master plans for each *settlement area* in the *Lake Simcoe watershed*. The stormwater management master plans will be prepared in accordance with the Municipal Class Environmental Assessment and will include:

a. a characterization of existing environmental conditions on a subwatershed basis, consistent with any relevant subwatershed evaluations, if available;

b. an evaluation of the cumulative impact of stormwater from existing and planned *development*;

c. a determination of the effectiveness of existing stormwater management works, including consideration of the potential impacts of climate change on the effectiveness of the works;

d. an examination of any stormwater retrofit opportunities that have already been identified by the municipality or the LSRCA for areas where stormwater is uncontrolled or inadequately controlled;

e. the identification of additional stormwater management retrofit opportunities or improvements to existing stormwater management works that could improve the level of treatment within a particular *settlement area*;

f. a description of existing or planned programs for regular maintenance of stormwater management works;

g. an identification of the recommended approaches for stormwater management in each *settlement area*; and

h. an implementation plan for the recommended approaches.

4.6-SA A municipality is encouraged to implement a stormwater retrofit prior to the completion of a stormwater management master plan if a stormwater retrofit opportunity has been identified as a priority for a *settlement area* and is determined to be economically feasible.

4.7-DP Municipalities shall incorporate into their official plans policies related to reducing stormwater runoff volume and pollutant loadings from *major development* and existing *settlement areas* including policies that:

a. encourage implementation of a hierarchy of source, lot-level, conveyance and end-of-pipe controls;

b. encourage the implementation of innovative stormwater management measures;

c. allow for flexibility in *development* standards to incorporate alternative community design and stormwater management techniques;

d. support implementation of programs to identify areas where source control or elimination of cross connections may be necessary to reduce pathogens or contaminants; and

e. support implementation of source control programs, which are targeted to existing areas that lack adequate stormwater controls.

4.8-DP An application for *major development* shall be accompanied by a stormwater management plan that demonstrates:

a. consistency with stormwater management master plans prepared under policy 4.5, when complete;

b. consistency with subwatershed evaluations prepared under policy 8.3 and water budgets prepared under policy 5.2;

c. where appropriate, an *integrated treatment train approach* will be used to minimize stormwater management flows and reliance on end-of-pipe controls through measures including source controls, lot-level controls and conveyance techniques such as grass swales;

d. through an evaluation of anticipated changes in the water balance between pre-development and post-development, how such changes shall be minimized; and

e. through an evaluation of anticipated changes in phosphorus loadings between pre-development and post-development, how the loadings from the proposed *development* shall be minimized.

4.9-DP (a) For the purposes of stormwater design for new *major development*, the *Director* shall refuse to issue an approval unless he or she is satisfied that the proposed stormwater management works have been designed to satisfy the *Enhanced Protection level* specified in Chapter 3 of the MOE's "Stormwater Management Planning and Design Manual 2003".

(b) The policy in subsection (a) does not apply if the proposed stormwater management works are intended to serve an infill *development* or a *redevelopment* within a *settlement area* and it is not feasible to comply with the level mentioned in subsection (a).

4.10-DP When issuing an approval for new stormwater management works, the *Director* shall include conditions of approval requiring the owner to inspect and maintain the works on a periodic basis.

4.11-DP When issuing an approval for a new priority stormwater management works, the *Director* shall include conditions of approval requiring the monitoring of the works. The determination of priority works will be based on the size and type of *development* serviced by the works, the location of the works, and any relevant subwatershed evaluations or stormwater management master plans, if available.

4.12-SA (a) The MOE will review the approvals issued under section 53 of the *Ontario Water Resources Act* in respect of existing priority stormwater management works within the *Lake Simcoe watershed*. The determination of priority works will be based on the size and type of *development* serviced by the works, the location of the works, and any relevant subwatershed evaluations or stormwater management master plans, if available.

(b) If a review of an approval for an existing priority stormwater management works determines that the conditions in the approval are inadequate, including the conditions related to inspection, maintenance and monitoring, the approval will be referred to the *Director* for the purpose of determining whether the approval should be amended.

4.13-SA Within two years of the date the Plan comes into effect, the MOE, in collaboration with the MMAH, the LSRCA and municipalities will develop stormwater management *indicators* for the *Lake Simcoe watershed*, including those related to impervious surfaces that may be used to assist in:

a. interpreting the results from environmental monitoring programs; and

b. gauging the extent of urban development in the *Lake Simcoe watershed* and its impacts.

Agricultural, Rural and Urban Landowner Activities

Activities of agricultural, rural and urban landowners that contribute to impaired water quality, including excess phosphorus, will be addressed by implementing the stewardship policies identified in the Stewardship, Education and Outreach section (Chapter 8 – Implementation) of this Plan.

Subsurface Sewage Treatment

4.14-SA The MMAH and the MOE will develop a proposal for a regulation under the Ontario Building Code Act, 1992 to designate the lands within 100 metres of the *Lake Simcoe shoreline* and any *permanent stream* of Lake Simcoe as a prescribed area for required on-site *sewage* maintenance re-inspections.

4.15-SA The MMAH, in consultation with the MOE, municipalities, conservation authorities, health units and industry partners, will consider standards being developed by the Bureau de Normalisation du Québec for small on-site *sewage* systems that evaluate new treatment unit technologies with respect to the reduction of pathogens and nutrients. The MMAH will consider the appropriateness of an amendment to Ontario's Building Code to incorporate the new standards.

4.16-DP Subject to other policies of the Plan, a new *subsurface sewage system* or *subsurface sewage works* shall not be permitted within 100 metres of the *Lake Simcoe Shoreline* or any *permanent stream* except in circumstances in which the *subsurface sewage system* or *subsurface sewage works* is intended to:

a. serve *agricultural uses*, secondary uses and *agriculture-related uses* and public open space; or

b. replace an existing *subsurface sewage system* or *subsurface sewage works*, but the replacement system or works shall not exceed the capacity of the original *subsurface sewage system* or *subsurface sewage works*; or

c. serve a *development* that consists of three dwellings or less, where the *development* is permitted by an applicable zoning by-law, as of the effective date of the Plan.

4.17-SA Within three years of the date the Plan comes into effect, the MOE will complete a study that identifies the sources of atmospheric deposition contributing phosphorus to the *Lake Simcoe watershed.*

4.18-SA Within three years of the date the Plan comes into effect, the MOE will:

a. review measures, including regulatory controls and best management practices, to reduce water quality impairment, including the contribution of phosphorus loadings to the *Lake Simcoe watershed* from construction activities;

b. evaluate the effectiveness of the measures; and

c. identify preferred measures based on the review and the study referred to in policy 4.17, including the types of policies that could be included in the Plan.

4.19-SA Within three years of the date the Plan comes into effect, the MNR and the MOE, in consultation with key stakeholders, will determine the need for additional standards in the Aggregate Resources of Ontario-Provincial Standards for mineral resource aggregate activities within the *Lake Simcoe watershed.* The determination will be based on the findings of the study identified in policy 4.17 and the MNR's review of the Aggregates Resources of Ontario-Provincial Standards.

4.20-SA The mineral aggregate resources industry is encouraged to adopt best management practices to reduce water quality impairment, including the contribution of phosphorus loadings to the *Lake Simcoe watershed.*

4.21-DP Municipalities shall include the following measures as conditions of subdivision agreement and site plan agreement:

a. keep the removal of vegetation, grading and soil compaction to a minimum;

b. put in place structures to control and convey runoff;

c. keep all sediment that is eroded during construction within the site;

d. seed or sod exposed soils once construction is complete; and

e. ensure erosion and sediment controls are implemented effectively.

4.22-SA *Site alteration* in the *Lake Simcoe watershed* should be undertaken in a manner that is consistent with the criteria set out in policy 4.21.

Scientific Water Quality Monitoring and Research

4.23-M The MOE, in partnership with the MNR, and the LSRCA, shall develop and implement an enhanced scientific water quality monitoring program that builds upon the monitoring program implemented through the LSEMS. This monitoring program shall be based on an adaptive management approach, and may be altered from time to time to respond to changing environmental conditions and management needs. At a minimum this monitoring program shall include:

a. routine monitoring of the water quality of Lake Simcoe and its tributaries;

b. water quality parameters that affect the health of the Lake Simcoe ecosystem, for example, nutrients, pathogens, chlorides, sediments, heavy metals and organic chemicals;

c. biological *indicators* linked to water quality; and

d. performance monitoring and reporting that evaluates the effectiveness of protection activities that are relevant to improving water quality.

4.24-SA The MOE, MNR and MAFRA, in collaboration with other partners, will promote, conduct and support scientific research projects. These projects will build on existing research and monitoring programs, identify emerging issues and support the overall adaptive management principle of the Plan. Initial research may focus on:

a. monitoring nutrients, including on-going validation of the phosphorus loading goal;

b. tracking sources of pollutants, such as pathogens, and assessing other contaminants such as chlorides; and

c. enhancing existing lake water quality models that relate total phosphorus loads to *dissolved oxygen* and considering new models used in other aquatic ecosystems, as well as those that assess the impacts associated with *invasive species*, climate change, and other emerging issues.

Phosphorus Reduction Strategy

4.25-SA Within one year of the date the Plan comes into effect, the MOE, in collaboration with other Provincial ministries, First Nations and Métis communities, the LSRCA and municipalities will develop a Phosphorus Reduction Strategy for the *Lake Simcoe watershed* for the purpose of reducing phosphorus loadings to achieve the target of *dissolved oxygen* of 7 mg/L. The components of the Phosphorus Reduction Strategy will include:

a. the development of subwatershed phosphorus loading targets;

b. if determined to be necessary, the development of phosphorus loading targets for specific areas of Lake Simcoe including individual targets for Kempenfelt Bay, Cook's Bay, and the main basin, which will accommodate the implementation of the Growth Plan for the Greater Golden Horseshoe;

c. an assessment of sources or sectors that contribute phosphorus loadings to the watershed, including:

   i. *sewage treatment plants*,

   ii. tributary sources,

   iii. *subsurface sewage systems* and *subsurface sewage works*

   iv. stormwater runoff, and

   v. sources of atmospheric deposition;

d. an identification of the actions that should be taken to address each source or sector assessed under sub-paragraph c;

e. the establishment of a long-term total phosphorus loading cap for all *sewage treatment plants* in the *Lake Simcoe watershed* and a proposal for how the aggregate long-term loading cap will be divided into individual loading caps for each *sewage treatment plant* in the watershed. In establishing the aggregate long-term loading cap and the rules governing how the aggregate cap shall be allocated, the following will be considered in respect of the existing *sewage treatment plants*:

   i. detailed evaluations of treatment efficiency, flow capacity and economic feasibility in achieving various effluent limits,

   ii. flow capacity needed to accommodate the population and employment growth allocated to the areas serviced by a *sewage treatment plant*, pursuant to the Growth Plan for the Greater Golden Horseshoe,

   iii. minimum standards for phosphorus removal, and

   iv. timelines required for achieving compliance with the new loading caps; and

f. an examination of how effluent re-use opportunities in the *Lake Simcoe watershed* may contribute to reducing phosphorus loadings to achieve the *dissolved oxygen* target of 7 mg/L.

4.26-SA Prior to March 1, 2009, the MOE will consult on extending Ontario Regulation 60/08 under the *Ontario Water Resources Act* until the Phosphorus Reduction Strategy is prepared and implemented. As part of the consultation, the MOE will consider what amendments, if any, should be made to the regulation to accommodate the extension of the regulation.

4.27-SA Within one year of the date the Plan comes into effect the MOE will conduct a feasibility study for *Water Quality Trading* pursuant to section 75, (1.8), of the *OWRA*.

4.28-SA Within one year of the date of the Plan comes into effect the MOE, in consultation with municipalities will develop and implement a plan to promote the use of low-phosphate or phosphate-free products within the *Lake Simcoe watershed*.

Chapter 5
Water Quantity

CONTEXT

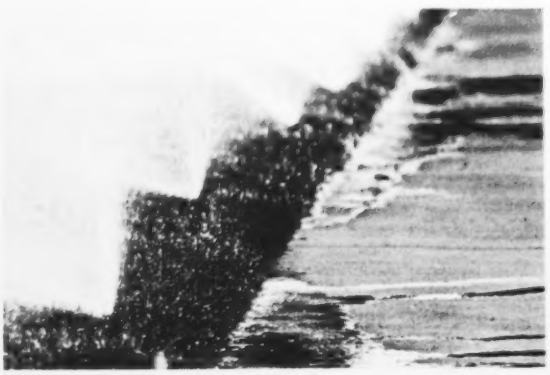
Extractions of large volumes of groundwater and surface water may be contributing to diminishing groundwater supplies in the *Lake Simcoe watershed*, reducing base flow to streams and reducing the overall flow of water into Lake Simcoe. Adequate flow in rivers and streams is needed to sustain aquatic ecosystems. Certain subwatersheds in the *Lake Simcoe watershed* are already under water quantity stress, causing changes in the aquatic habitats of rivers and streams and impacting aquatic communities.

Changes in water levels and flows can also affect other elements of the watershed such as water quality and the health of natural areas and shorelines. Watershed residents and users also depend on a sustainable water supply for a variety of uses, including drinking water, agriculture uses and irrigation, industrial processing, navigation, recreation and wastewater assimilation.

Demand for water will likely intensify as continuing growth and *development* diminish available supplies. In addition, climate change also has potential impacts on water quantity, including:

- demand for water potentially exceeding supply;
- changes in ice cover affecting evaporation, lake levels, shoreline erosion, precipitation, seasonality, and lake-effect snow;
- periodic failures of *sewage* and flood control infrastructure;
- reduction in ground water and artesian flows; and
- an increase in flooding and/or drought events.

The policies included in the Plan will help increase the capacity of the *Lake Simcoe watershed* to adapt to the impacts of climate change. The MOE's Permit to Take Water Program, as well as source protection planning under the Clean Water Act, 2006, would continue to play important roles in managing water quantity in the *Lake Simcoe watershed*.



Over watering home lawns

Extensive water use on golf course

To protect aquatic ecosystems in the *Lake Simcoe watershed*, an adequate portion of the available water supply must be reserved for the ecosystem and restricted from human consumption. This Plan would support research to estimate the reserve flows required to maintain healthy aquatic ecosystems in the watershed. It would also promote greater efforts to conserve and use water more efficiently in order to maintain future demands for water within sustainable limits. Specific targets for protecting water quantity will be developed once the research has been completed.

Key Facts

- The use of large amounts of groundwater and surface water can cause reduced flow in streams, the lowering of the water table and a reduced total inflow of water to the lake. At high risk of depletion (e.g., below the level to maintain base flow) is the Maskinonge River.
- The State of the *Lake Simcoe Watershed* Report (LSEMS, 2003) pointed to decreases in streamflow that have affected the availability of aquatic habitats and resulted in the loss of recreational opportunities and impacts to the local economy.
- Water quantity issues can bring with them significant impacts across the *Lake Simcoe watershed*. These issues are attracting more attention through initiatives such as source water protection under the Clean Water Act, 2006, which will lead to the development of "water budgets" that quantify the volumes of water in a watershed.

Indicators:

- To monitor progress in achieving the water quantity-related objectives of the Plan, the following are *indicators* of environmental health relating to water quantity:
    - maintenance of stream flow and specific base flow targets (as identified in the instream flow studies and implemented through the water-taking strategy).
    - effective water conservation and efficiency plans (e.g., as measured through reductions in peak water demand, reduced water use per capita).

Policies:

Water Supply

5.1-SA The MOE and the MNR will develop instream flow targets for water quantity stressed subwatersheds, as identified in the *Tier 1 water budget*. This includes the development of instream flow targets for the Maskinonge River subwatershed within two years of the date the Plan comes into effect.

The instream flow targets will be used to inform future strategies related to water taking. These strategies may include policies that:

a. set out how much water can be allocated among users in a subwatershed, including setting aside an allocation to support the natural functions of the ecosystem; or

b. specify requirements on the *Directors* when issuing or amending Permits To Take Water in that subwatershed.

5.2-SA Within two years of the date the Plan comes into effect, the LSRCA, with input from municipalities, will complete *Tier 2 water budgets* for all stressed subwatersheds (as identified in the *Tier 1 water budget*) that do not have drinking water systems.

The water budgets may be used to inform:

- municipal water conservation and efficiency plans, including those prepared under Policy 5.4 and municipal decisions concerning growth and *development*;
- water-taking strategies prepared under Policy 5.1 and decisions made by the *Director* concerning Permits To Take Water; or
- policies that would be included in future amendments to the Plan.

Water Conservation and Efficiency

5.3-SA Within five years of the date the Plan comes into effect, the municipalities of Barrie, Orillia, New Tecumseth, Bradford West Gwillimbury, Innisfil, Oro Medonte, and Ramara will prepare a water conservation and efficiency plan that has regard to the recommended standards and practices for the municipal sector including those recommended by the Ontario Water Works Association.

A water conservation and efficiency plan will, at a minimum,

a. identify and evaluate:

   i. water conservation measures such as improved management practices, the use of flow-restricting devices and other hardware, water reuse and recycling, and practices and technologies associated with water reuse and recycling,

   ii. water conservation incentives such as full-cost pricing, and

   iii. methods for promoting water conservation measures and water conservation incentives, including public education and awareness programs for rural residents not served by a municipal water supply system;

b. analyze the costs and benefits of the measures described in clause (a);

c. require the use of specified water conservation measures and incentives;

d. contain an implementation plan for those specified measures and incentives that reconciles the demand for water with the water supply;

e. provide for monitoring and reporting of the effectiveness of the conservation plan; and

f. consider the potential impacts of climate change.

5.4-SA The MAFRA, in cooperation with key stakeholders, will assist and encourage water conservation and efficiency efforts in the agricultural community through stewardship programs aimed at promoting the adoption of best management practices. Specific opportunities may include:

a. Education and outreach under the Environmental Farm Plan (EFP) and other *Lake Simcoe watershed*-focused programs, and related financial cost-share support to implement agricultural water conservation and efficiency best management practices; or

b. In stressed subwatersheds where the adoption of individual best management practices through the EFP will not deal with agricultural water supply challenges, a strategic approach to water supply planning that identifies communal infrastructure or other stewardship programs, and cost-share or partnership opportunities that may be appropriate.

5.5-SA The MOE will work with other water use sectors, such as other commercial and industrial sectors, in the *Lake Simcoe watershed* to encourage the development and implementation of water conservation and efficient use practices for their sector.

5.6-DP An application to establish or expand a *major recreational use* shall be accompanied by a recreation water use plan that demonstrates:

a. water use for maintenance or snow-making or both are kept to a minimum;

b. grassed, watered and manicured areas are limited to sports fields surfaces, golf fairways, tees and greens, and landscaped areas around buildings and structures; grass mixtures that require minimal watering and upkeep will be used for sports fields and golf fairways where applicable;

c. crossings of intermittent and *permanent streams* are kept to a minimum;

d. water-conserving technologies (such as low-flow toilets and shower heads) are used in clubhouses and restaurants where applicable;

e. water-conserving technologies (such as timed irrigation systems designed to reduce evaporation losses, and recycling of water from under greens) are used in the irrigation and watering of sports field surfaces, golf fairways, tees and greens, and landscaped areas around buildings and structures where applicable;

f. other water conservation technologies (such as rainwater harvesting or reuse of stormwater) will be used to reduce water use; and

g. stormwater treatment facilities are used to capture and treat runoff from areas with impervious surfaces.

Chapter 6
Shorelines and Natural Heritage

CONTEXT

Natural heritage refers generally to terrestrial, wetland and aquatic features (e.g., *woodlands*, *wetlands*, and streams) and their functions (e.g., *wildlife habitat*, shoreline stabilization).

Forest

Natural Shoreline

The promotion and protection of the ecological health of the Lake Simcoe shoreline and the watershed's natural heritage are important in order to foster a resilient, adaptable, and sustainable watershed. Natural heritage features are vital components of the ecosystem in and of themselves and are closely linked to other elements such as water quality and quantity. Healthy natural heritage features help to regulate water quality and quantity by preventing erosion, stabilizing shorelines, filtering contaminants, and retaining carbon, nutrients, and sediments. The Lake Simcoe shoreline and other natural heritage and hydrologic features in the watershed also provide many cultural, social and economic benefits through recreation and tourism, and the sustainable harvest of natural products.

Currently, the loss and/or degradation of natural heritage features presents a challenge in the *Lake Simcoe watershed.* Threats to natural heritage features can lead to drastic and detrimental changes, potentially reducing the quality of natural heritage features and their functional role in the overall health of the watershed.

Climate change can also directly and indirectly impact natural areas and shorelines.

Climate change can influence the frequency, intensity, extent and magnitude of existing problems and cause impacts to natural areas and shorelines such as:

- drought and flooding;
- change in species composition;
- interference or alteration of biological events such as migration and breeding;
- shifts or loss of biodiversity within *woodlands*, *riparian areas* and *wetlands*;
- unknown impacts to wetland functions; and
- changes to forest cover and ecosystem functions in the watershed.

Map of existing Provincial Plans applicable to the Lake Simcoe watershed

The *Lake Simcoe watershed* is covered by three main provincial plans or policy statements that address some of the issues relating to the protection of the Lake Simcoe shoreline and key natural heritage and key hydrological features. Both the Greenbelt Plan and the Oak Ridges Moraine Conservation Plan have some similar objectives to the Lake Simcoe Protection Plan, but these Plans do not cover the entire watershed. The remainder of the watershed is covered by the Provincial Policy Statement (PPS); however, it is not as prescriptive in the treatment of the shoreline and natural heritage features.

Other legislation, regulations and policies govern certain activities associated with the shoreline and natural heritage features. For instance, the *Public Lands Act, 1990* controls activities and uses of Crown land including the bed of the lake. The *Conservation Authorities Act, 1990* requires permits associated with *development* or *site alteration* along *lakes* and rivers and within floodplains, river valleys and *wetlands*.

This Plan would promote a consistent approach to the protection, enhancement and restoration of the *Lake Simcoe shoreline* and of key natural heritage and hydrologic features throughout the watershed. It would focus on protecting, improving, and restoring those features considered most critical to the overall health of the watershed and address activities in those areas that are considered of particular concern.

Protecting and restoring the *Lake Simcoe shoreline*, including both aquatic and terrestrial areas associated with the shoreline, is given particular importance in this Plan. The Lake Simcoe Science Advisory Committee report summarizes the scientific literature and importance of these areas. This report indicates that natural shoreline areas perform multiple functions, including control of run-off and associated nutrients and other pollutants, stabilizing shorelines from erosion, conserving habitats for a disproportionately high number of aquatic and terrestrial species, regulating temperature and microclimate, screening noise and wind, preserving the aesthetic appeal of the landscape and providing recreational opportunities. This Plan seeks to protect and restore vegetated buffer zones along the lake. This Plan restricts alteration of the shoreline and areas near the shore, and also restricts buildings, structures and other *development* in these areas.

An ecologically healthy Lake Simcoe shoreline and natural heritage system will improve water quality and will better equip the watershed to endure ongoing and future challenges such as *invasive species*, climate change, and land use change.

Key Facts

- Overall, 47 percent of the *Lake Simcoe watershed's* land area (approximately 2800 square kilometres) is currently agricultural. Developed lands, non agricultural lands and roads make up an estimated 18 percent.
- While approximately 35 percent of the *Lake Simcoe watershed* is under natural cover (*woodlands* and *wetlands*), much of it exists in a fragmented state and the quality of these as habitats for sensitive elements of biodiversity has not been assessed.
- The distribution of natural cover varies across the watershed with a low of 9 percent in the Keswick Creeks subwatershed to a high of 55 percent in the Carthew Bay Creeks subwatershed.

Key Facts (continue)

- Although most of the shoreline has been developed, some areas remain in a relatively natural state, mostly in the northeast sector of the lake.
- Activities such as clearing natural vegetation along the shore and building concrete docks and walls – referred to as "shoreline hardening" – have disrupted ecologically and hydrologically important linkages between the land and water.

Targets:

- No further loss of natural shorelines on Lake Simcoe
- Achieve a greater proportion of natural cover in large *high quality* patches
- Achieve a minimum 40 percent *high quality* natural vegetative cover in the watershed
- Achieve protection of *wetlands*
- Achieve naturalized *riparian areas* on Lake Simcoe and along all streams
- Enhance water quality and quantity by restoring *riparian areas* and other natural areas or features
- Achieve increased ecological health based on the status of indicator species and maintenance of natural biodiversity

Indicators:

- Change over time in the proportion of land in *wetland*, forested *valleyland*, natural riparian and upland forest taking into account habitat quality
- The degree of fragmentation of *wetland*, forested *valleyland*, riparian and upland forest
- The integrity of natural shoreline, i.e. the amount of shoreline that is either undeveloped or maintained in a naturalized state
- Occurrence and abundance of key indicator species or groups and those of conservation concern
- Integrity of significant recharge areas

Policies:

Lake Simcoe Shoreline

6.1-DP Subject to the other policies of the Plan, *development* and *site alteration* outside of *existing settlement areas* is prohibited within Lake Simcoe and within a vegetation protection zone referred to in policy 6.2, except in relation to the following:

a. Forest, fish, and wildlife management;

b. *Existing uses* as set out in policy 6.40;

c. Conservation and flood or erosion control projects (not including stormwater management facilities), but only if they have been demonstrated to be necessary in the public interest after all alternatives have been considered;

d. *Infrastructure*, but only if the need for the project has been demonstrated and there is no reasonable alternative; and

e. Low-intensity recreational uses including access to the lake that require very little terrain or vegetation modification and few, if any, buildings or structures, including but not limited to the following:

i. non-motorized trail use,

ii. natural heritage appreciation,

iii. unserviced camping on public and institutional land, and

iv. accessory uses to existing buildings or structures.

6.2-DP The minimum vegetation protection zone in a *shoreline built-up area* is 30 metres from the *Lake Simcoe shoreline*, or larger if determined appropriate by an evaluation required by policy 6.3. The vegetation protection zone associated with the remaining *Lake Simcoe shoreline*, outside of existing *settlement areas*, is 100 metres from the *Lake Simcoe shoreline*.

6.3-DP Within *shoreline built-up areas*, *development or site alteration* within 120 metres of the *Lake Simcoe shoreline*, but outside the minimum 30 metres vegetation protection zone, shall be subject to a natural heritage evaluation as identified in policy 6.23, unless the *development* or *site alteration* is in relation to a use permitted by policy 6.1.

6.4-DP Subject to the other policies in this Plan, structures may be permitted in a vegetation protection zone along the Lake Simcoe shoreline provided:

a. there is no alternative but to place the structure in this area and the area occupied by such structures is minimized;

b. the ecological function of the vegetation protection zone is maintained; and

c. Pervious materials and designs are used to the extent feasible.

6.5-DP Outside of *existing settlement areas*, a proposal for *development* or *site alteration* adjacent or close to the Lake Simcoe shoreline must demonstrate that the *development* or *site alteration* will maintain and, where feasible, enhance functional wildlife movement corridors between natural heritage and hydrologic features along the Lake Simcoe shoreline and from the Lake Simcoe shoreline to other nearby natural heritage and hydrologic features beyond the minimum vegetation protection zone.

6.6-DP Subject to the other policies in this Plan, a *shoreline built-up area* may only be expanded to provide for minor rounding out of the area.

6.7-DP Significant alteration of the shore of Lake Simcoe or the shore of a fresh water estuary of a stream connected to Lake Simcoe is not permitted unless the significant alteration is for the purpose of stabilizing, protecting, restoring or rehabilitating the shore or the alteration will be undertaken by a public body and the project is consistent with the objectives of this Plan.

Policies Applying to Both Lake Simcoe and Streams

6.8-DP No structures, including boathouses, shall be permitted in Lake Simcoe or in a *permanent or intermittent stream* if the structure impedes the natural flow of water along the shoreline or in the stream, if the structure is intended to be used as a dwelling, or if the structure or its construction harmfully alters *fish habitat*.

6.9-DP The alteration of the shore of Lake Simcoe or any *permanent or intermittent stream* for stabilization, erosion control or protection purposes shall only be permitted if it is demonstrated that natural shoreline treatments (e.g. planting of natural vegetation, *bioengineering*) that maintain the natural contour of the shoreline will be used where practical, and a vegetative *riparian area* will be established to the extent feasible.

6.10-DP Where, in accordance with the policies of the Plan, *development and site alteration* is permitted adjacent or close to the *Lake Simcoe shoreline* or any *permanent or intermittent stream* or a wetland, the *development* or *site alteration* shall be integrated with existing or proposed parks and trails and shall not constrain ongoing or planned stewardship and remediation efforts.

6.11-DP A proposal for *development* or *site alteration* within 30 metres of the *Lake Simcoe shoreline* or a *permanent or intermittent stream* or wetland, shall comply with the following where applicable:

a. Maintain, and where possible, increase or improve *fish habitat* in the lake, stream or wetland, and any adjacent *riparian areas*;

b. To the extent possible, enhance the ecological features and functions associated with the lake, stream or wetland;

c. Minimize erosion, sedimentation, and the introduction of nutrients or other pollutants and utilize planning, design, and construction practices that maintain and improve water quality; and

d. Integrate landscaping and habitat restoration into the design of the proposal to enhance the ability of native plants and animals to use the area as both *wildlife habitat* and a movement corridor.

6.12-SA Within three years of the date the Plan comes into effect, the MNR and the LSRCA, in collaboration with First Nations and Métis communities, the MAFRA and municipalities will develop a shoreline management strategy to identify values, opportunities, needs, appropriate best management practices, priority areas for restoration, securement, acquisition, standards and guidelines, associated with various reaches of the shoreline.

6.13-SA Public agencies are encouraged to actively re-naturalize public areas adjacent to shorelines and streams to a minimum of 30 metres where practical and feasible.

6.14-SA For existing cottages and residences, landowners will be encouraged to re-naturalize shorelines and areas adjacent to streams up to 30 metres where practical and feasible.

Proposed Shoreline Regulation

6.15-SA Within one year of the date the Plan comes into effect, the MOE, in collaboration with the MNR and other regulatory agencies will release for consultation proposed draft regulations under Section 26 of the Lake Simcoe Protection Act, 2008 based on further advice from the *Lake Simcoe Science Committee*. These regulations will build on and are not intended to duplicate other existing legislation and regulations that apply to the shoreline areas including the Conservation Authority Act, and the Public Lands Act.

6.16-SA The area to which the shoreline regulation proposed under policy 6.15 would apply includes the *littoral zone*, the *riparian area*, and on-land areas near the shoreline within which regulated activities may affect shoreline *ecological functions*. This regulated area will be described in the Plan once the regulation is drafted.

6.17-SA The proposed regulation under policy 6.15 is anticipated to be consistent with the following:

a. restrict the use of fertilizer use for non agricultural lands such that the water quality of *lakes* and streams is not affected;

b. restrict activities that contribute to the spread of *invasive species*;

c. prohibit peat extraction in all *wetlands* in the watershed;

d. prohibit the filling or draining of existing *wetlands* except as related to *mineral aggregate operations* or *existing settlement areas* where the regulation would only apply to those *wetlands* of provincial significance, and in relation to existing agricultural operations (e.g. Holland Marsh);

e. removal of vegetation and coarse woody debris would be prohibited within shoreline areas, with some exceptions, to protect existing natural areas adjacent to shorelines and to retain vegetated buffers consistent with those required by *development* and *site alteration* policies (e.g. 30 metre minimum vegetation protection zone on either side of a *permanent or intermittent stream*); and

f. other issues identified through research and consultations.

Key Natural Heritage and Key Hydrologic Features

6.18-DP Key natural heritage features are *wetlands, significant woodlands, significant valleylands*, natural areas adjacent to Lake Simcoe, and *permanent and intermittent streams*.

6.19-DP Key hydrologic features are *wetlands, permanent and intermittent streams*, and *lakes* other than Lake Simcoe.

6.20-DP For those areas outside of *existing settlement areas* and outside of the Greenbelt Plan area and Oak Ridges Moraine Conservation Plan area, *development* and *site alteration* is prohibited within a key natural heritage feature, a key hydrologic feature and within a vegetation protection zone referred to in policy 6.21, except in relation to the following:

a. Forest, fish, and wildlife management;

b. *Existing* uses as specified in policy 6.40;

c. Conservation and flood or erosion control projects (not including stormwater management facilities), but only if they have been demonstrated to be necessary in the public interest after all alternatives have been considered;

d. New *mineral aggregate operations* and wayside pits and quarries pursuant to policies 6.36 – 6.39;

e. *infrastructure* and utilities, but only if the need for the project has been demonstrated and there is no reasonable alternative; and

f. Low-intensity recreational uses that require very little terrain or vegetation modification and few, if any, buildings or structures, including but not limited to the following:

   i. non-motorized trail use,

   ii. natural heritage appreciation,

   iii. unserviced camping on public and institutional land, and

   iv. accessory uses to existing buildings or structures.

6.21-DP The minimum vegetation protection zone for all key natural heritage features and key hydrologic features is the area within 30 metres of the key natural heritage feature and key hydrologic feature, or larger if determined appropriate by an evaluation required by policy 6.22.

6.22-DP For those areas outside of *existing settlement areas* and outside of the Greenbelt Plan area and Oak Ridges Moraine Conservation Plan area, an application for *development or site alteration*, other than an application for *development or site alteration* in relation to a use permitted in 6.20, within 120 metres of a key natural heritage feature or key hydrologic feature, shall be accompanied by a natural heritage evaluation.

6.23-DP A natural heritage evaluation referred to in policies 6.3 and 6.22 shall be carried out in accordance with guidelines developed by the MNR and shall:

a. demonstrate that the *development or site alteration* applied for will have no *adverse effects* on the key natural heritage feature, key hydrologic feature, Lake Simcoe and its associated vegetation protection zone, or on the related *ecological functions*;

b. identify planning, design and construction practices that will maintain and, where feasible, improve or restore the health, diversity and size of the key natural heritage feature or key hydrologic feature and its *connectivity* with other key natural heritage features or key hydrologic features as well as *connectivity* and linkages to natural heritage systems identified in Provincial Plans or by municipalities, the LSRCA or MNR;

c. demonstrate how *connectivity* within and between key natural heritage features and key hydrologic features will be maintained and, where possible, improved or restored before, during and after construction to allow for the effective dispersal and movement of plants and animals;

d. determine if the minimum vegetation protection zone is sufficient to protect the *ecological functions* of the feature and the associated minimum vegetated protection zone, in particular where such minimum vegetation zone is adjacent to a coldwater stream, headwaters, freshwater estuaries, steep slope or is acting as or has been identified as a wildlife corridor to ensure that the area will continue to effectively act and function as a wildlife corridor;

e. determine if the minimum vegetation protection zone is sufficient to protect areas adjacent to existing features that would be appropriate for restoration or renaturalization to enhance the ecological functioning of that feature, such as lands that provide for rounding out or filling of gaps in *significant woodlands*; and

f. if the minimum vegetation protection zone is not sufficient to protect the function of the feature or protect opportunities for feature enhancement, specify the dimensions of the required vegetation protection zone.

6.24-DP A proposal for new *development* or *site alteration* within 120 metre of the Lake Simcoe shoreline, a key natural heritage feature or a key hydrologic feature shall provide for the establishment and maintenance of *natural self-sustaining vegetation* to the extent and width of the associated vegetation protection zone required by the policies in this Chapter, except in relation to uses and structures in the vegetation protection zone that are permitted by the policies of this Chapter.

6.25-DP Any application for *development or site alteration* requiring the establishment of a buffer or vegetation protection zone as a result of the application of the PPS or the policies in this Plan shall demonstrate that the buffer or setback will be composed of and maintained as *natural self-sustaining vegetation.*

6.26-DP *Natural self-sustaining vegetation* within Lake Simcoe, a key natural heritage feature, a key hydrologic feature or any associated vegetation protection zone removed as part of any *development, site alteration* or other construction activity permitted under policies 6.1, 6.20, 6.38 and 6.40, shall be re-established to the extent feasible following completion of that activity.

6.27-SA Within one year of the date the Plan comes into effect the MNR, in collaboration with the LSRCA, will define the key natural heritage and key hydrologic features in the watershed outside of the Greenbelt Plan area and the Oak Ridges Moraine Conservation Plan area.

6.28-SA Within one year of the date the Plan comes into effect, the MNR and the MOE, in collaboration with First Nations and Métis communities and the LSRCA, will map natural areas adjacent and close to Lake Simcoe.

Settlement Areas

6.29-DP Policies 6.29 and 6.30 apply to *existing settlement areas* and areas of Lake Simcoe adjacent to these lands, including the littoral zone, and these areas are not subject to policies 6.1 - 6.3, 6.5 and policies 6.18 - 6.23.

6.30-DP Any application for *development or site alteration* shall, where applicable:

a. increase or improve *fish habitat* in streams, *lakes* and *wetlands*, and any adjacent *riparian areas*;

b. include landscaping and habitat restoration that increase the ability of native plants and animals to use *valleylands* or *riparian areas* as *wildlife habitat* and movement corridors;

c. seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, *lakes* and *wetlands*; and

d. increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.

Recharge Areas

6.31-DP Significant groundwater recharge areas are those areas that are within the *Lake Simcoe watershed* identified by the LSRCA, in collaboration with the MOE, using technical rules and information associated with preparing an assessment report under the Clean Water Act, 2006 for the Lake Simcoe and Couchiching/Black River Source Protection Area, but are not limited to areas having a hydrological connection to a surface water body or aquifer that is a source of drinking water for a drinking water system.

6.32-DP Municipalities shall incorporate significant groundwater recharge areas within their official plans.

6.33-DP Outside of the Oak Ridges Moraine Conservation Plan area, urban *settlement area* expansions should avoid significant groundwater recharge areas.

6.34-DP Outside of the Oak Ridges Moraine Conservation Plan area, an application for *development or site alteration* within a significant groundwater recharge area shall be accompanied by an environmental impact study that demonstrates that the quality and quantity of groundwater in these areas will be protected, improved or restored.

6.35-DP Outside of the Oak Ridges Moraine Conservation Plan area, municipalities shall incorporate policies in their official plans to restrict the following uses within significant groundwater recharge areas:

a. generation and storage of hazardous waste or liquid industrial waste;

b. waste disposal sites and facilities, organic soil conditioning sites, and snow storage and disposal facilities;

c. underground and above ground-storage tanks that are not equipped with an approved secondary containment device; and

d. storage of a contaminant listed in Schedule 3 (Severely Toxic Contaminants) to Regulation 347 of the Revised Regulations of Ontario, 1990.

Mineral Aggregate Operations and Wayside Pits and Quarries

6.36-DP Policies 6.36 -6.39 apply to new *mineral aggregate operations* and wayside pits and quarries that are outside of the Greenbelt Plan area and the Oak Ridges Moraine Conservation Plan Area.

6.37-DP No new *mineral aggregate operations* and no wayside pits and quarries, or any ancillary or accessory use thereto will be permitted in the following *key natural heritage features* and key hydrologic features:

a. *significant wetlands*;

b. *significant* habitat of *endangered species* and *threatened species*; and

c. *significant woodlands* unless the woodland is occupied by young plantation or early successional habitat (as defined by the MNR).

6.38-DP An application for a new *mineral aggregate operation* or a new wayside pit or quarry may only be permitted in a key natural heritage feature and key hydrologic feature or its related, vegetation protection zone, other than a feature mentioned in policy 6.38, where the application demonstrates the following:

a. the health, diversity and size of these key natural heritage features will be maintained or restored and, to the extent possible, improved to promote a net gain of ecological health; and

b. any permitted extraction of mineral aggregates that occurs in a feature will be completed, and the area will be rehabilitated, as early as possible in the life of the operation.

6.39-DP Every application for a new *mineral aggregate operation*, or the expansion of an existing *mineral aggregate operation* shall be required to demonstrate:

a. how the *connectivity* between key natural heritage features and key hydrologic features will be maintained before, during and after the extraction of mineral aggregates; and

b. how the operator could immediately replace any habitat that would be lost from the site with equivalent habitat on another part of the site or on adjacent lands.

6.40-DP Where a policy in this Chapter permits *development* or *site alteration* in relation to *existing uses*, the following policies apply:

a. All *existing uses* lawfully used for such purposes on the day before the Lake Simcoe Protection Plan comes into force are permitted;

b. The construction of a building on an existing lot of record is permitted, provided it was zoned for such as of the date the Plan comes into effect, or where an application for an amendment to a zoning by-law is required as a condition of a severance granted prior to the date this Plan comes into effect;

c. The new *development* permitted in b., expansion to existing buildings or structures, accessory structures and uses, and/or conversions of legally *existing uses* which bring the use more into conformity with this Plan are permitted subject to a demonstration that the use does not expand into a key natural heritage feature, a key hydrologic feature and any minimum vegetation protection zone associated with a feature or the *Lake Simcoe shoreline*, unless there is no alternative in which case any expansion shall be limited in scope and kept within close geographical proximity to the existing structure;

d. The expansion to existing agricultural buildings and structures, residential dwellings and accessory uses to both, may be considered within a key natural heritage feature, a key hydrologic feature, and any minimum vegetation protection zone associated with these features or the *Lake Simcoe shoreline*, if it is demonstrated that:

   i. there is no alternative to the expansion or alteration and the expansion or alteration is directed away from the feature and vegetation protection zone to the maximum extent possible, and

   ii. the impact of the expansion or alteration on the feature and its functions is minimized to the maximum extent possible; and

e. Expansion, maintenance or replacement of existing *infrastructure* is permitted.

Site Alteration and Tree Cutting Bylaws

6.41-SA Within two years of the date the Plan comes into effect, the MNR, in consultation with the MOE, the MMAH, the LSRCA and municipalities, will lead the *development* of a template for municipal *site alteration* and tree cutting bylaws within the watershed as related to natural heritage features including *wetlands* and *woodlands*, and following *development* will encourage implementation of such a bylaw.

Natural Areas Protection, Improvement and Enhancement

6.42-SA Within two years of the date the Plan comes into effect, the MNR and the LSRCA in collaboration with the MOE, the MAFRA, First Nations and Métis communities and municipalities, will delineate priority areas for *riparian area* restoration and other areas to focus natural heritage protection, improvement, restoration and enhancement efforts including the definition or delineation of important corridors and linkages. The delineation will build on existing natural heritage systems identified by the Province and municipalities within the *Lake Simcoe watershed* and identified anchor sites (*high quality* connected natural features) to support the *development* of a comprehensive stewardship strategy throughout the watershed.

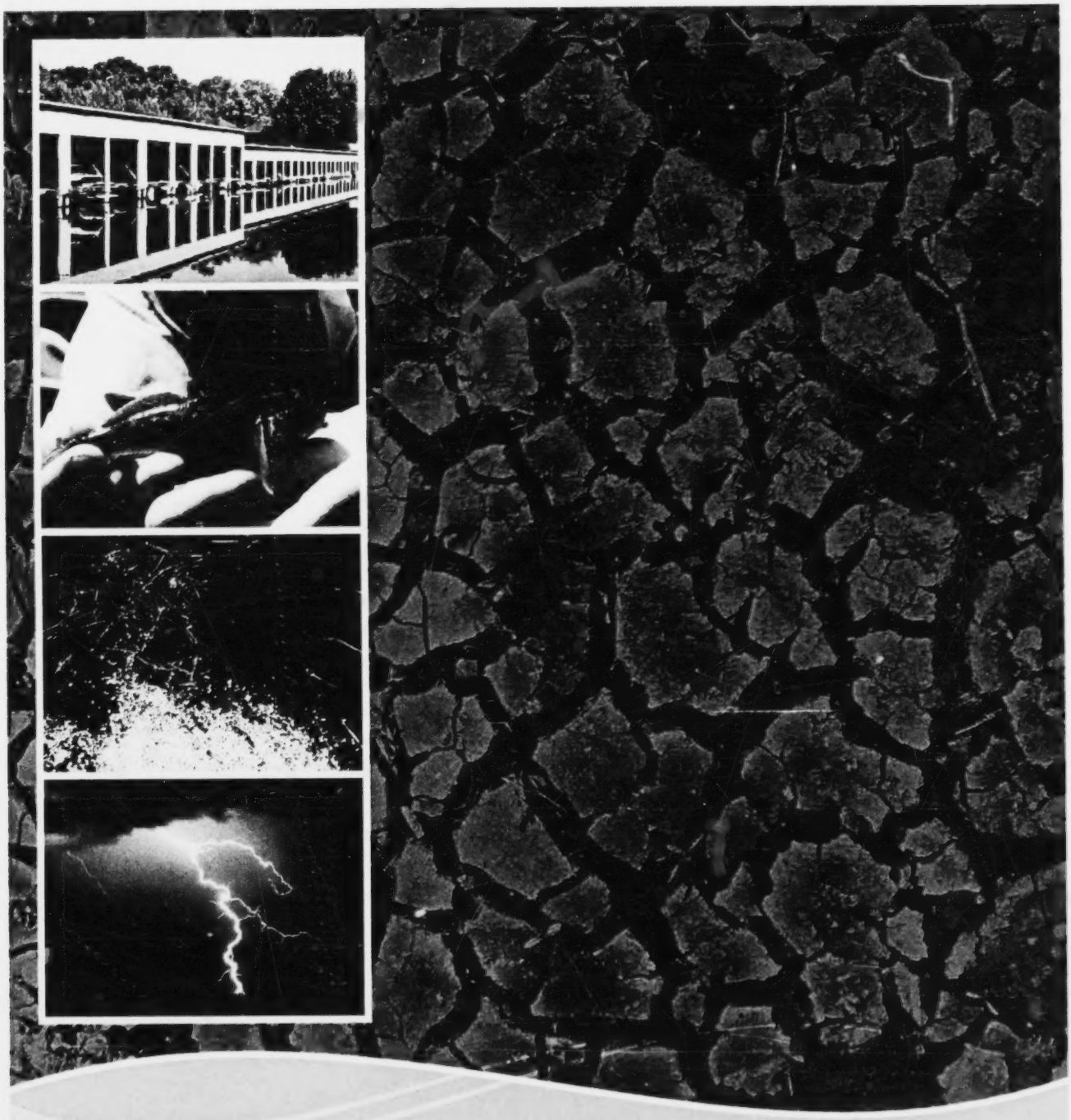
6.43-SA Within two years of the date the Plan comes into effect, the MNR in collaboration with First Nations and Métis communities, will identify and map areas of *high quality* natural cover that are 25 hectares or greater.

6.44-SA Within one year of the date the Plan comes into effect, the MNR, the MOE, and the LSRCA, in collaboration with First Nations and Métis communities, and other Ministries, will identify stressed subwatersheds or portions of stressed subwatersheds.

6.45-SA The LSRCA will delineate the areas outside of its jurisdiction, but within the *Lake Simcoe watershed*, for the purpose of consistently applying the regulation O.R. Reg. 179 to development along watercourses within *Lake Simcoe Watershed*. The LSRCA will prepare a regulation to include these areas.

The MOE will also develop a regulation under clause 27 (1) (a) of the Act to designate the participating municipalities of the Lake Simcoe watershed to ensure that all municipalities within the watershed are members of the Lake Simcoe Region Conservation Authority for the purpose of the Act.

6.46-M Within one year of the date the Plan comes into effect, the MNR, the LSRCA and the MOE will develop and implement a monitoring program in relation to the targets and *indicators* associated with natural heritage and hydrologic features and areas. The monitoring program will also support research and adopt an adaptive management approach. The monitoring plan will include measuring changes in overall abundance of quality habitat through key indicator species (both flora and fauna) that are indicative of the health of the ecosystem. The monitoring program will also gather information on terrestrial species at risk and species that are influenced by climate change.



Chapter 7
Other Threats and Activities

7.1 NEWLY INTRODUCED (INVASIVE) SPECIES

CONTEXT

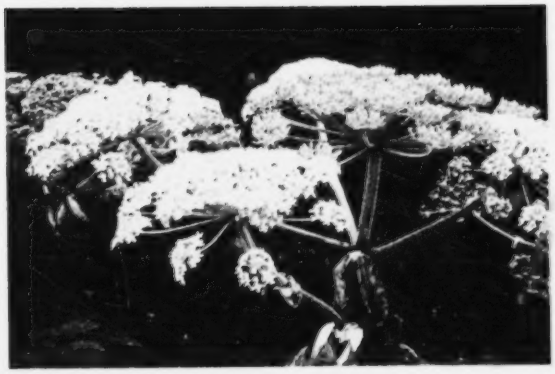
Many aquatic and terrestrial species within the Lake Simcoe ecosystem are newly introduced to the lake or the watershed.

The spread of *invasive species* causes a reduction in abundance of native species, is a leading cause of species becoming at risk of extinction and disrupts nutrient and energy cycles. Native coldwater species are particularly at risk from an invasion by non-native species.

Invasive species can also have a significant impact to the economy, including loss of revenue related to natural resources, as well as increased costs for monitoring and for maintaining facilities.

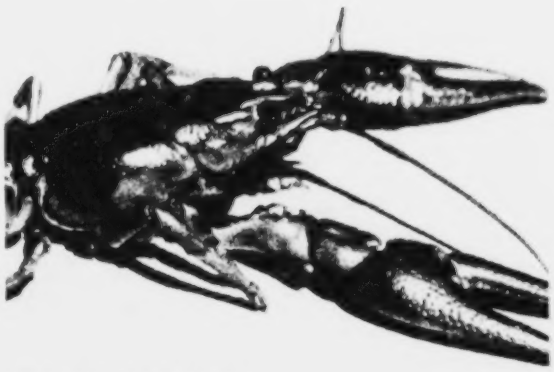
Most *invasive species* are introduced unintentionally, often due to a lack of public awareness about the environmental damage they cause. Aquatic species may arrive in the *Lake Simcoe watershed* attached to boats, boat trailers, fishing gear used in other waters or moving through the Trent-Severn Waterway, via the release or escape of live bait fish captured outside the watershed, by escaping from holding ponds in the floodplain, and due to people emptying the contents of aquariums into natural waterways. Terrestrial species may be introduced through ornamental gardening, or through the transfer of seeds in the treads of hiking boots and bicycle tires.

Once they become established, *invasive species* are difficult and costly to eradicate. When prevention fails, early detection is extremely important so that steps can be taken to understand their potential impact, eradicate or contain the *invasive species*, or mitigate its impacts. Local watershed monitoring programs are well established and have a record of early detection when it comes to aquatic invaders. Similarly, regular aquatic



Invasive Species: Hogweed

Invasive Species: Zebra mussels



Invasive Species: Rusty Crayfish

monitoring programs (including fish diseases) exist in adjacent watersheds and the Great Lakes. On the other hand, there is very limited monitoring in place for terrestrial invaders and consequently little is known about their incidence, distribution or impact in the *Lake Simcoe watershed*.

The range of *invasive species* continues to expand and this expansion may increase with climate change. In addition, the introduction and spread of *invasive species* will probably have a greater threat in Ontario as Ontario makes up a significant portion of Canada's population (39%). In Canada the estimated annual cumulative lost revenue caused by the impacts of only 16 *invasive species* in its forests, fields and waters is estimated to be between 13.3 to 34.5 billion dollars.

Policies and programs are emerging at local, provincial and federal levels to help manage the threat from *invasive species*. At the present time however, the regulatory tools available for controlling high-risk human pathways are limited in scope.

In the interim, in collaboration with stakeholders and partner organizations, the Plan would focus on:

- using public education, outreach and stewardship to prevent the introduction of new *invasive species*;
- evaluating and mitigating the potential high-risk pathways; and
- building a more coordinated and comprehensive approach for monitoring and responding to *invasive species* in the *Lake Simcoe watershed*.

The Plan will also use existing regulatory tools such as Ontario Fishery Regulations to address high-risk pathways.

Key Facts

- *Invasive species* known to be in Lake Simcoe and their date of introduction:
  - common carp – 1896
  - rainbow smelt – 1962
  - Eurasian watermilfoil – 1984
  - curly-leaf pondweed – 1961-1984
  - black crappie – 1987
  - zebra mussel – early 1990s
  - spiny water flea – 1993
  - bluegill – 2000
  - quagga mussel – 2004
  - rusty crayfish – 2004
  - Eurasian amphipod, *Echinogammarus ischus* – pre-2005
  - round goby – 2006
- Terrestrial *invasive species* known to be in Lake Simcoe include Giant hogweed, Japanese knotweed, Dog-strangling vine, Garlic Mustard weed and Common reed.
- The date of introduction for terrestrial invaders and the scale of occurrence cannot be accurately defined largely due to limited monitoring limited monitoring and reporting.
- These species can cause damaging effects to natural heritage features and species biodiversity.
- Terrestrial invaders may indirectly affect water quality through their impact on watershed vegetation.

Key Facts (continued)

- 34 percent of vascular plants found in Ontario are introduced.
- In less than 10 years, zebra mussels have significantly reduced the natural populations of mussels and clams in Lake Simcoe and have had a broad system-wide impact, affecting many other species.
- Next to habitat loss, *invasive species* is the leading cause of species becoming at risk of extinction.

Target:

- Prevent new *invasive species*

Indicator:

- Presence of newly introduced species

Policies:

7.1-SA The MNR in partnership and collaboration with other ministries, First Nations and Métis communities, the OFAH, the LSRCA and other stakeholders will deliver information and education programs annually for the general public and key stakeholders on how to prevent the spread of, and how to detect, aquatic and terrestrial *invasive species*.

7.2-SA Within two years of the date the Plan comes into effect, the MNR and the OFAH, in collaboration with First Nations and Métis communities, will conduct a community-based social marketing project. The project will identify effective methods to engage stakeholders for the purpose of modifying their behaviour to reduce the introduction and spread of *invasive species* in the *Lake Simcoe watershed*.

7.3-SA Within three years of the date the Plan comes into effect, the MNR, in collaboration with First Nations and Métis communities and with stakeholders, will develop an Ontario Fishery Regulation under the federal *Fisheries Act* for public consultation and federal government approval. The regulation would restrict the origin of live baitfish and leeches used in the *Lake Simcoe watershed* to live baitfish captured in the watershed only.

7.4-SA Within one year of the date of the Plan comes into effect, the MNR will develop a watch list of aquatic and terrestrial *invasive species* (including fish and wildlife diseases and insect pests) likely to be introduced to the *Lake Simcoe watershed*. And, within five years of the date the Plan comes into effect, the MNR in collaboration with other public bodies and the federal government will develop and implement response plans to *invasive species* present in the watershed and on the watch list. The compilation of the watch list and the preparation of the response plans will be risk-based. The watch list and the response plans will be updated from time to time.

7.5-SA Within two years of the date the Plan comes into effect, the MNR will complete a study to evaluate the potential risk of movement of *invasive species* through the Trent-Severn Waterway. The scope of the study will include an examination of the dispersal of *invasive species* resulting from boat traffic through the Waterway. As soon as reasonably possible after the study's completion, the MNR will release to the public a summary of the study's findings.

7.6-SA Within two years of the date the Plan comes into effect, the MNR will determine the extent of the live food fish trade in the *Lake Simcoe watershed* and, if warranted, evaluate the level of risk associated with the practice and determine appropriate management options.

7.7-SA Within six years of the date the Plan comes into effect, the MNR will evaluate the level of risk related to ponds in the floodplain contributing to the spread of *invasive species*, including baitfish holding ponds, private water gardens, and holding ponds associated with the water garden trade that may be holding fish, plants and invertebrates. If the identified risk warrants further action, in subsequent years the MNR will develop a facility risk assessment/security policy.

7.8-SA Commencing in the third year of the Plan, the MNR, in partnership with the OFAH, will develop and implement a three-year mobile boat wash program to increase awareness of best management practices for boaters and encourage improved behaviour by boaters.

7.9-SA The MNR will annually review existing provincial science funding programs and partnerships on an ongoing basis to identify opportunities for research funding and partnerships that will help improve knowledge related to the impact and control of *invasive species* in the *Lake Simcoe watershed*.

7.10-M Within the first year of the Plan, the MNR, in collaboration with other ministries, First Nations and Métis communities, the LSRCA, the OFAH and other NGOs, shall develop and implement an annual monitoring program for terrestrial *invasive species* (including pests/wildlife diseases) in the *Lake Simcoe watershed* that will facilitate early detection and response and help inform and adapt pubic education, outreach, and stewardship programming.

CONTEXT

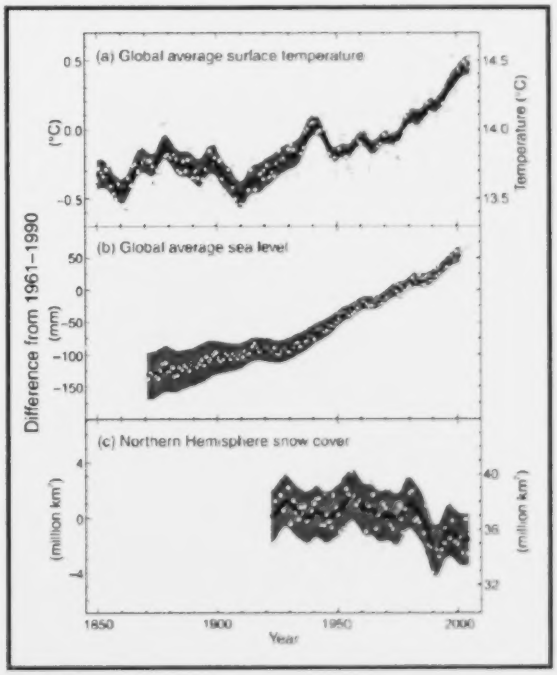
As a result of global warming and climate change, scientists predict that average temperatures in Ontario could rise by as much as three to eight degrees Celsius over the next century.

Climate change is expected to influence, directly and indirectly, all elements of the *Lake Simcoe watershed*, including water quality and quantity, aquatic ecosystems, and natural areas and shorelines. In fact, studies have already indicated that climate change has shortened the duration of ice cover on the lake. This has in turn shortened the ice fishing season, a major winter recreational activity. That said, the specific effects of climate change remain uncertain, particularly at the local level. How Lake Simcoe would be affected and how it would respond is not well understood.

One way to prepare for a changing climate is to protect the natural resiliency of the entire Lake Simcoe watershed ecosystem. Risk assessment and adaptation planning are critical actions for enhancing the watershed's capacity to naturally adapt to future changes in climate. As a first step, a Lake Simcoe climate change adaptation strategy will help identify the impacts of a changing climate on the watershed and identify opportunities for adaptation.

In addition to the policies outlined in this Chapter, other policies designed to protect the natural resilience of the ecosystem and to assist with climate change adaptation are threaded throughout the Plan.

Release of carbon dioxide into the atmosphere



Global Effects of Climate Change.
© Intergovernmental Panel on Climate Change 2007

Key Facts

- Climate change models , which analyze historic patterns, predict significant changes in climate and weather in Ontario in the future (with signs that these changes are already underway). This includes more frequent extreme weather and high-velocity wind events, and changes in snowfall patterns and ice-cover on *lakes*:
    - On Lake Simcoe delayed freeze-up and earlier ice-off dates have occurred over the past five decades.
- In the winter of 2001-2002, a reduction of ice on Lake Simcoe led to the cancellation of the Canadian Ice Fishing Championship and significant loss to the local economy.
- Loss of vegetation cover and milder temperatures may encourage pathogens, which are more common further south, such as Lyme disease (deer ticks), West Nile virus (mosquito), and epidemic typhus (tick).
- It is hypothesized that warming may exacerbate the bioaccumulation of contaminants in lake trout based on a study of 23 North American lakes, including Lake Simcoe.

Indicators:

- Meteorological data (e.g. temperature, ice cover, snow cover)
- Lake thermal structure and heat budget
- Lake hydrodynamics
- River hydrology
- Timing of seasonal processes like fish spawning

Policies:

7.11-SA Within two years of the date the Plan comes into effect, the MOE, in collaboration with the MNR, the MAFRA, First Nations and Métis communities, the LSRCA and municipalities will develop a climate change adaptation strategy for the *Lake Simcoe watershed* to:

a. assess and evaluate the risk and expected frequency of climate change impacts;

b. identify areas for research on the impact of climate change in the watershed, including impacts on *wetlands*, aquatic life, terrestrial species and ecosystems, headwaters, conservation of life cycles, groundwater temperature, and water table levels;

c. identify the steps needed to develop an integrated climate change monitoring program to inform decision making and model the impact of climate change on the watershed;

d. identify the role of municipalities in the watershed with respect to adaptation planning and using adaptation planning experience in the watershed to help inform other municipalities;

e. identify key recommended adaptation actions that need to be undertaken, having regard to the advice of the Provincial Expert Panel on Climate Change Adaptation, and identify roles and responsibilities for relevant parties; and

f. identify potential amendments to the Plan to ensure the recommended actions are undertaken.

CONTEXT

Swimming, camping, fishing, boating and snowmobiling are just a few activities enjoyed on and around Lake Simcoe. As the population in southern Ontario continues to grow, demand for these activities will increase. Recreational activities have the potential to impact water quality, water quantity, aquatic life and the spread of *invasive species*. A major challenge for the Lake Simcoe area is how to continue to provide quality recreational opportunities while minimizing congestion, conflicts between different uses and users, and impacts to the natural environment. Furthermore, climate change could, in future years, also affect our recreational use of the lake, for example, reduced ice cover due to increased temperatures could mean less time available for ice fishing.

Motor boat

Young child swimming in Lake Simcoe

There are other challenges. For example, discharges from recreational boats can adversely affect the lake and its tributaries. Recreation facilities, such as marinas and golf courses, also have the potential to impact the lake through accidental spills or stormwater runoff.

Among the programs already in place to help manage these threats is the Clean Marine Program, which aims to reduce pollution from boating activities through voluntary initiatives taken by boaters, marinas, and manufacturers and distributors of marine products. Golf courses in the area can participate in the Audubon Cooperative Sanctuary System, a program that helps golf courses protect the environment. This Plan supports and builds on these initiatives as it works toward achieving sustainable recreational practices in the *Lake Simcoe watershed*.

Moving forward, it is important to ensure that people continue to have access to recreation sites around Lake Simcoe. Among other benefits, it is expected that fostering sustainable, low-impact opportunities to enjoy the lake would encourage more people to value it and, ultimately, increase the number of people engaged in lake stewardship.

Key Facts

- The frequency and duration of public beach closures have increased since 2003.
- In addition to the permanent residents in the area, there are more than 12,000 cottages on the lake, increasing the population by 50,000 during the summer months.
- Recreational activities are estimated to inject more than $200 million annually into the local economy.
- Lake Simcoe is the most intensively fished inland lake in the province. In 2005, anglers spent over 700,000 hours ice fishing on Lake Simcoe from the end of January to the middle of March.

Policies:

7.12-SA The LSRCA is encouraged to conduct an assessment of the recreational carrying capacity of Lake Simcoe and develop sustainable recreational policies in consultation with the MOE, the MTOUR, the MHP, the MNR, First Nations and Métis communities, municipalities, industry and other key stakeholders.

7.13-SA When approving a *development* along the *Lake Simcoe shoreline*, municipalities should encourage public access to the lake.

7.14-SA The MOE, in collaboration with the MTOUR, the MHP, the MNR, First Nations and Métis communities, and with regional partners and associations will review best management practices which promote sustainable recreational activities.

7.15-SA Owners and operators of marinas, golf courses and other recreational businesses are encouraged to adopt best management practices to protect the *ecological integrity* of Lake Simcoe and its watershed and seek environmental certification where available and possible.

Chapter 8

Implementation

CONTEXT

This Plan would affect decisions and defines a wide range of actions that would help to protect and improve the ecological health of the *Lake Simcoe watershed.* For the Plan to be implemented successfully, ongoing coordination and collaboration among many organizations and communities is required.

This chapter outlines the overarching policies and approaches that would guide the implementation of the policies described in the preceding chapters. These include:

- coordinating analyzes, target development, and management on a multi-scale sub-watershed basis;
- working with existing stewardship partners and enhancing opportunities for community-wide involvement and participation;
- using research, monitoring and reporting to ensure the Plan is based on best available science;
- working together in a coordinated and collaborative fashion with all levels of government, non-governmental organizations, First Nations and Métis communities, the private sector, and citizens;
- considering opportunities to engage First Nations and Métis communities at all stages of Plan implementation and developing engagement processes in collaboration with First Nations and Métis community partners;
- developing clear fiscal tools and financial resources to support implementation of the Plan; and
- embracing an adaptive management approach and amending the Plan over time.

Collaboration and teamwork

Stewardship Rangers in action on the Holland Marsh

Each of these is discussed in more detail below.

Subwatershed Evaluations

Managing on a watershed basis makes sense because watersheds are ecologically-relevant boundaries for managing human activities. Watersheds and subwatersheds can be defined at various scales depending on environmental considerations and specific management requirements. For instance, some policies and management actions may apply across an entire watershed, whereas others may be specific to the needs and priorities of a particular subwatershed. With its broad focus on the *Lake Simcoe watershed*, as well as the proposed development and tailoring of certain targets and actions at the sub-lake and subwatershed level, the Plan clearly embraces this multi-scale watershed approach.

8.1-SA Within one year of the date the Plan comes into effect, the MOE in collaboration with other ministries, First Nations and Métis communities, the LSRCA, watershed municipalities, the *Lake Simcoe Coordinating Committee* and the *Lake Simcoe Science Committee* will develop guidelines that set out:

a. how sub-lake areas and subwatersheds of the *Lake Simcoe watershed* should be defined;

b. how subwatershed evaluations and subwatershed-specific targets and actions should be developed in relation to, at a minimum:

i. the phosphorus reduction strategy,

ii. stormwater management master plans,

iii. water budgets,

iv. instream flow targets, and

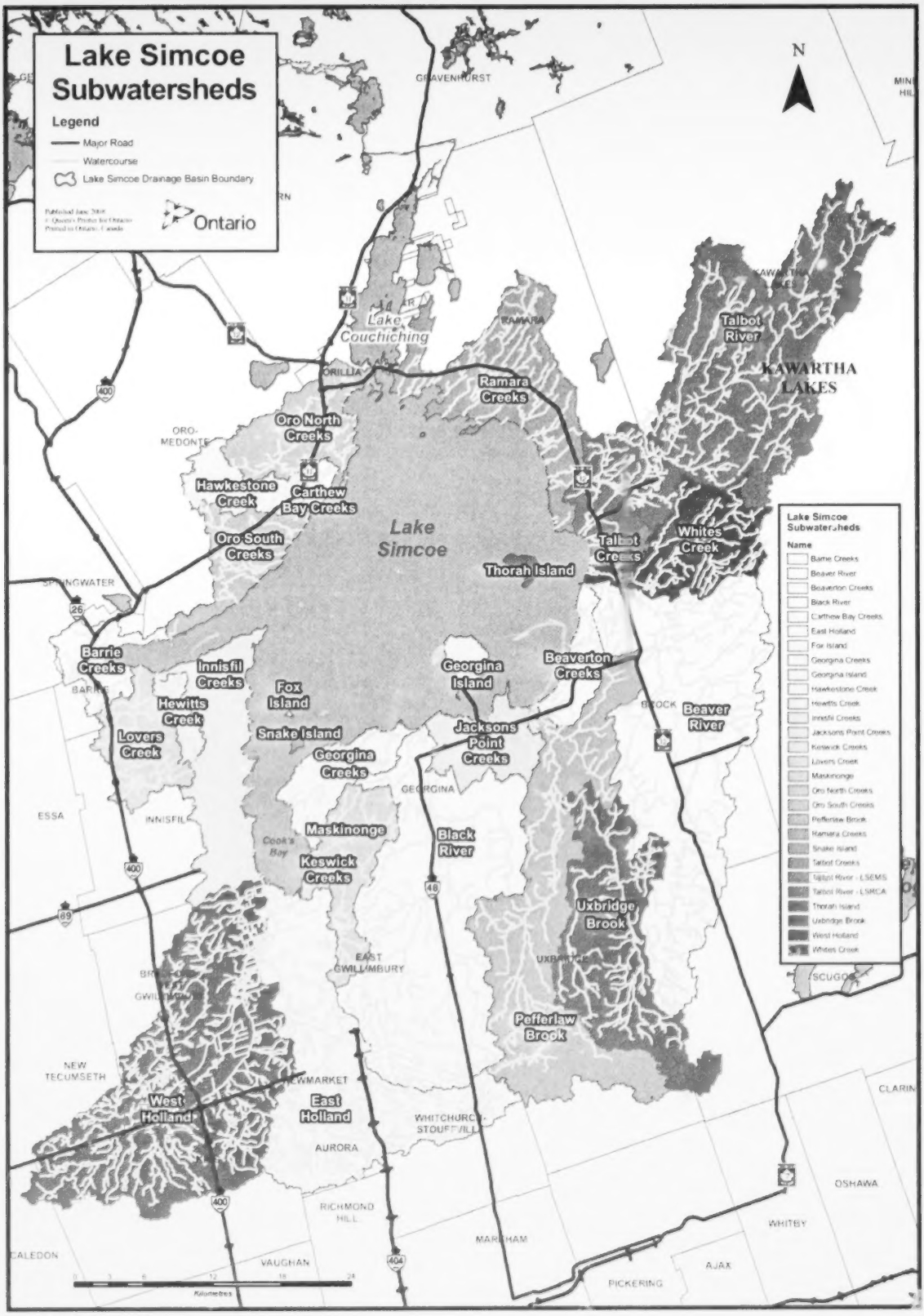
v. natural heritage restoration and enhancement; and

c. how priorities for undertaking subwatershed evaluations should be determined.

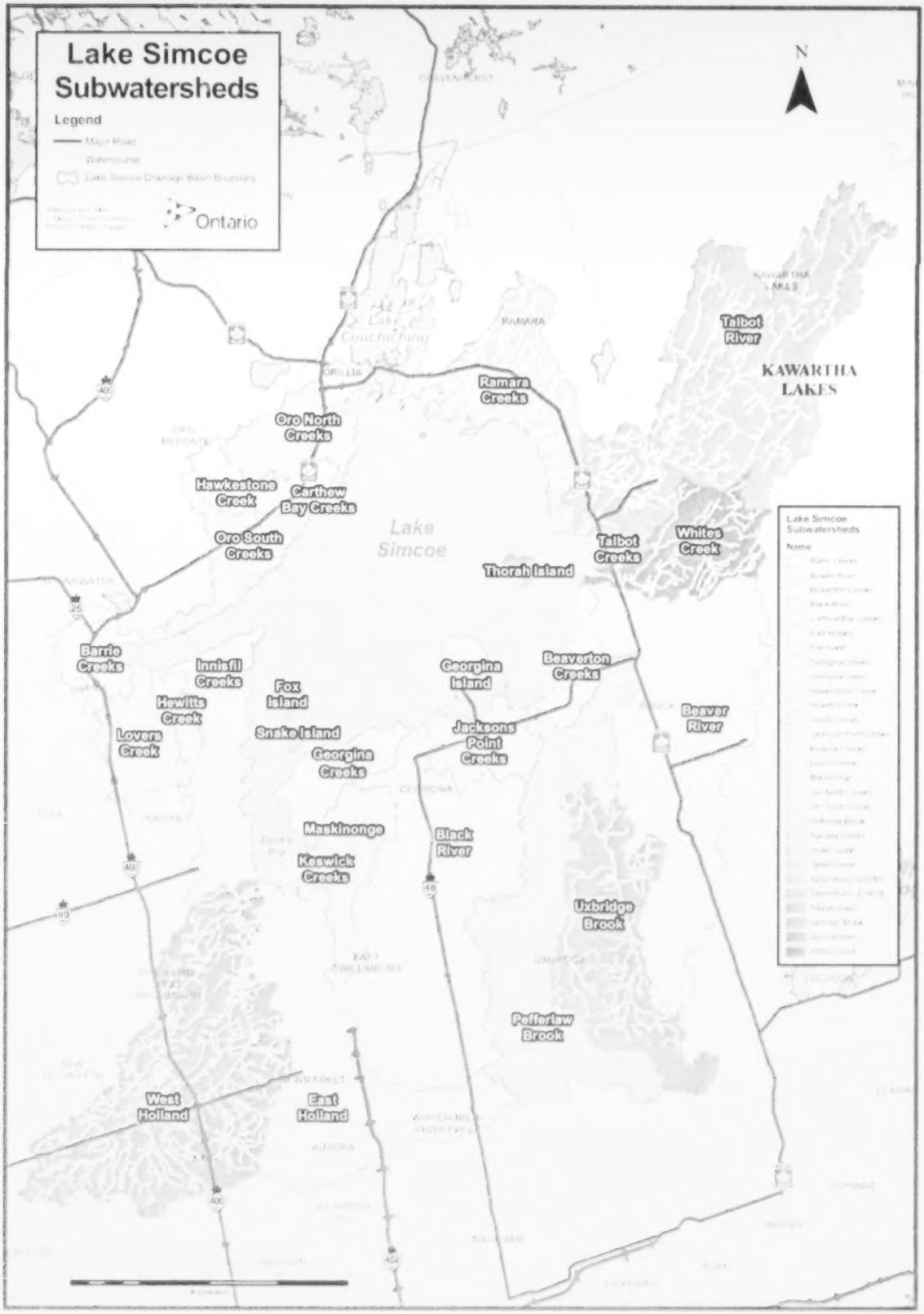
8.2-SA The partners identified above will develop processes to undertake subwatershed evaluations that build upon and integrate with source protection plans under the Clean Water Act, 2006, as well as relevant work of the LSRCA and watershed municipalities.

8.3-SA Within five years of the date the Plan comes into effect, the LSRCA, in partnership with municipalities, will develop and complete subwatershed evaluations for priority subwatersheds.

8.4-SA Key findings and recommendations arising from these sub-lake and subwatershed analyzes will be implemented by incorporation into relevant municipal official plans, through potential amendments to the Plan, or through action by appropriate agencies under existing Plan policy, as appropriate.



Example of subwatersheds


Lake Simcoe Subwatersheds
Legend
Major Road
Watercourse
Lake Simcoe Drainage Basin Boundary
Ontario
N
Lake Simcoe
Talbot River
KAWARTHA LAKES
Ramara Creeks
Oro North Creeks
Hawkestone Creek
Carthew Bay Creeks
Oro South Creeks
Talbot Creeks
Whites Creek
Thorah Island
Barrie Creeks
Innisfil Creeks
Fox Island
Hewitts Creek
Lovers Creek
Snake Island
Georgina Creeks
Georgina Island
Beaverton Creeks
Jacksons Point Creeks
Beaver River
Maskinonge
Keswick Creeks
Black River
Uxbridge Brook
Pefferlaw Brook
West Holland
East Holland
Lake Simcoe Subwatersheds
Name

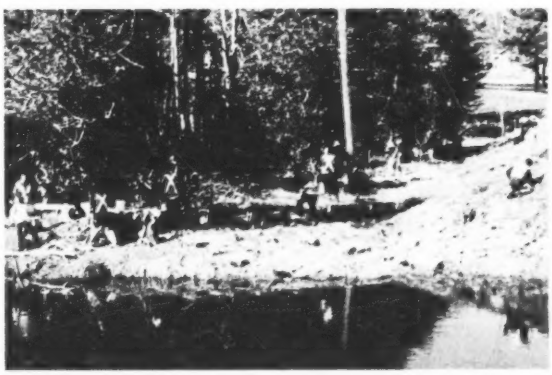
Stewardship, Education and Outreach

In the *Lake Simcoe watershed*, it is recognized that no one segment of the community is solely responsible for environmental impacts on the lake, and that protection of the lake and its watershed is a shared responsibility.

Stewardship, education and outreach are tools that will assist in achieving the Plan's objectives. They provide mechanisms for connecting directly with rural, agricultural, urban and shoreline residents, government, industry and business interests in the watershed, helping them understand their influence on the *Lake Simcoe watershed* and encouraging them to voluntarily engage in responsible and sustainable actions.

Stewardship programs support positive actions; they help to address specific threats facing the *Lake Simcoe watershed* and encourage a strong land and water ethic. Education and outreach programs connect the environmental, economic, social and scientific aspects of stewardship and help to improve community acceptance and encourage positive changes in people's behaviour. They can include demonstration and pilot projects that showcase innovative approaches, sector-specific technology and the beneficial results of stewardship actions. Community-based monitoring programs can also help to increase citizen awareness and involvement while contributing to improved knowledge of the watershed and its ecological conditions.

The extent to which stewardship organizations and programs can make a difference is enhanced when they partner in areas of mutual interest. Collaboration and networking between community partners, government, industry, landowners and residents can help to identify watershed-wide stewardship priorities, reduce duplication, enhance program delivery and present a strong and holistic stewardship approach to the entire *Lake Simcoe watershed* community. The Plan would envision three areas in which stewardship, education and outreach activities would be concentrated:



Shoreline stewardship project

(1) Lake Simcoe Stewardship Network/ Alliance

The proposed establishment of a Lake Simcoe Stewardship Network/ Alliance would expand the community's capacity to achieve the environmental protection and restoration objectives of the Plan. This network of stewardship partners would have broad representation from local and regional community groups, First Nations and Métis communities, industry, government, and the LSRCA in addition to members of the agricultural, rural, and urban communities. As a body, it would:

- facilitate information sharing, technology transfer and accountability;
- enhance collaboration and increase efficiencies in cost-sharing, communication and co-marketing while recognizing individual partner roles, strengths and successes;
- identify stewardship priorities for action;
- assist with subwatershed planning and programming;
- support and enhance funding and other resources;
- enhance influence in other sectors of the watershed community; and
- champion key new initiatives, technologies and best management practices.

(2) Agricultural Stewardship

Farm in the Lake Simcoe watershed

Agricultural land-use accounts for approximately 47 percent of the *Lake Simcoe watershed* area. There are an estimated 2,000 farms in the watershed. Farmers are doing good work to reduce the amount of phosphorus going into Lake Simcoe and its tributaries; however, more can be done.

To increase stewardship actions to reduce agricultural impact on the lake, programs to help farmers with the cost of implementing measures will be encouraged. Some examples of best management practices include restricting livestock access to watercourses, establishing vegetated buffers along lake and tributary shorelines, improving on-farm storage and handling of petroleum products, pesticides, manures and fertilizer, modifying tillage practices to reduce soil erosion and run off and using nutrients such as phosphorus effectively.

To date, the Federal-Provincial Environmental Farm Plan Program, administered by the Ontario Soil and Crop Improvement Association in partnership with the Ontario Farm Environmental Coalition has established a renowned and comprehensive framework for education and engagement of agricultural producers in voluntary best management practices. These efforts have been supported by numerous others through, for example, programs offered by the LSRCA, Ontario Stewardship, and other community groups.

The Plan will build on these successes. Enhanced cost-share opportunities will be developed with community partners and provincial and federal agencies to take action in priority areas. It will, for example, provide opportunities for technical knowledge transfer through demonstration projects, innovative best management practice approaches, and science and performance evaluation. It is the intent of the Province to provide enhanced funding to leverage the existing Environmental Farm Plan program to address priority issues and threats in the watershed. In addition, the government will collaborate with other funding and stewardship programs in the watershed to ensure efficiencies are realized and improved outcomes are delivered.

(3) Rural Land Stewardship

Throughout rural and urban areas of the watershed, numerous organizations, community groups and individuals have been actively engaged for many years in environmental restoration, stewardship and education programs to protect and improve the health of the local natural heritage features.

The Plan proposes the development of a Rural Community Landowner Stewardship Program that would parallel the cost-shared educational and incentive-based approach of the Environmental Farm Plan Program and build on existing community-wide programs and activities. The goal would be to encourage non-farm landowners in rural and urban areas to engage in activities that protect and improve water quality and natural heritage features, ranging from simple behavioural changes to on-the-ground restoration projects. This would be achieved by enhancing partnerships among existing stewardship organizations with a view to streamlining and increasing program accessibility and funding, reducing duplication, and enhancing respective stewardship, education and outreach functions. As the program evolves, its focus would extend to stewardship, education and outreach programming in urban, public, recreational and industrial areas, and to community-based monitoring and other innovative programs that would offer all citizens an opportunity to play a role in protecting the lake.

8.5-SA Within one year of the date the Plan comes into effect, the MNR and other provincial ministries, in collaboration with First Nations and Métis communities, the LSRCA, and other stewardship partners will establish a broad-based, watershed-wide stewardship network/alliance. The purpose of the network/alliance is to strengthen the strategic focus of agricultural, rural, and urban stewardship programs and activities (including education and outreach), enhance collaboration among agencies, industry and citizen/community organizations and support the implementation of the Plan.

8.6-SA The MAFRA, in consultation with the MNR, the LSRCA and agricultural organizations will continue to develop and implement broad-based agri-environmental stewardship programs to promote the adoption of best management practices to support the implementation of the Plan.

8.7-SA Within three years of the date the Plan takes effect and based on the results of the other agri-environmental stewardship initiatives, advice and scientific work completed in the watershed, the MAFRA will reassess stewardship programming, and modify as necessary, to address priority needs in the watershed.

8.8-SA The MNR and the MAFRA, in collaboration with First Nations and Métis communities, the LSRCA and other stewardship partners will develop a structured educational and incentive-based stewardship program for rural and urban (non-farm) landowners in the watershed to promote the adoption of best management practices and support the implementation of the Plan.

8.9-SA The MAFRA in consultation with the MNR, the LSRCA and other agricultural organizations will promote the development and implementation of best management practices demonstration and pilot projects focused on innovation and technology advancement as a means of supporting agricultural stewardship activities.

8.10-SA Based on the findings of the study identified in policy 4.16, the MAFRA, in consultation with key stakeholders, will determine the need for additional or modified stewardship and best management practice measures to reduce phosphorus loadings and wind-borne erosion from agricultural activities in the *Lake Simcoe watershed*.

8.11-SA The MOE, in consultation with industries, businesses, the development community, municipalities and other community organizations will review operational, building and development measures, including best management practices (e.g. Leadership in Energy and Environment Design (LEED).

Research, Monitoring and Reporting

To remain effective over time, the Plan must be adaptive to what is learned from ongoing scientific research and monitoring in the watershed. This Plan prescribes a number of key research and monitoring actions. Collectively, these actions will help to improve our understanding of how the *Lake Simcoe watershed* functions and increase our ability to detect changes in the natural environment. Scientific research and monitoring will also inform the adaptive management approach used in the Plan by providing the information necessary to review and evaluate the effectiveness of Plan policies and targets.

The Plan adopts a precautionary approach and prescribes action using the best available scientific information with the understanding that there are current gaps in our knowledge of the lake and its watershed. To begin to address these knowledge gaps and to reduce the uncertainty around current information, the Plan provides for research initiatives that will cover a range of key *Lake Simcoe watershed* issues, including water quality and quantity, aquatic life and habitat, *invasive species* and

climate change. These research initiatives will inform the implementation of current policies and help direct future amendments to the Plan. Research will be coordinated by the MOE, the MNR and the LSRCA, in collaboration with the *Lake Simcoe Coordinating Committee*, the *Lake Simcoe Science Committee*, First Nations and Métis communities and other relevant agencies.

These partners will also collaborate to design and implement a comprehensive monitoring strategy for the *Lake Simcoe watershed*. The Plan also provides for the development of new, or the enhancement of existing monitoring programs needed to fill current monitoring gaps. A comprehensive coordination strategy will help to ensure that required data are available in a suitable format and that monitoring efforts are not being duplicated.

The results of the above-mentioned scientific research and monitoring initiatives will be reported periodically by the MOE. At least once every five years, the MOE will produce a report that describes the results of monitoring programs as well as the extent to which the objectives of the Plan are being achieved.

The MOE, in partnership with other ministries, will also monitor the implementation of the Plan, including reviewing the performance of the Plan's policies concurrent with any review of this Plan.

8.12-SA Every two years, the MOE, MNR, MAFRA and the LSRCA will organize an event or events that focus on scientific monitoring and research related to the protection of the ecological health of Lake Simcoe and its watershed. The event will facilitate the transfer of scientific information and knowledge and coordinate monitoring and research activities among watershed partners to promote the efficient use of resources and funds.

Coordination, Public Engagement and Aboriginal Community Engagement

In designing the proposed coordination framework, the Province considered what it heard in response to its March 2008 discussion paper, as well as the earlier recommendations of the LSEMS Steering Committee and Working Group's 2007 recommendations on governance. Input was also received from the Lake Simcoe Stakeholder Advisory Committee.

Primary among the advice given was that a new decision-making body should not be created. There was also considerable support for a greater role for community partners in the protection of Lake Simcoe, in recognition of the fact that no one agency can do everything that needs to be done. Involvement of community partners in implementation would also provide opportunities for greater collaboration and information sharing as well as ensure a higher degree of transparency. In addition, community partners and the public indicated that they supported a leadership role for the Province. The proposed coordination framework is consistent with the advice that was received.

The Province would play a lead role in developing and coordinating implementation of the Plan. The MOE is establishing a new temporary Lake Simcoe Plan Project Team for this purpose. One of its primary functions would be to facilitate collaborative partnerships for implementation, with opportunities for public engagement. Indeed, public engagement with all stakeholders is an integral part of both developing and implementing the Plan. Another key function of the project team would be to provide organizational support to two new committees, the *Lake Simcoe Science Committee* and the *Lake Simcoe Coordinating Committee*. The provincial team will be the primary contact for implementation of the Plan. However, it should be noted, the Province is also represented in the watershed with MOE District and field offices in Barrie and Newmarket, MNR District offices in Midhurst and Aurora, Lake Simcoe Fisheries Assessment Unit in Sutton and an MAFRA field office in Midhurst.

The Lake Simcoe Protection Act, 2008 allows for the establishment of two advisory committees: the *Lake Simcoe Science Committee* and, the *Lake Simcoe Coordinating Committee*. Under the Act, the Lieutenant Governor in Council is required to appoint the members of the committee after considering recommendations of the Minister. The Minister is authorized to specify the practices and procedures of both committees. Before specifying practices and procedures, the Minister would seek the advice of each advisory committee.

Public bodies responsible for implementing strategic action (**SA**) policies set out in the Plan would be responsible for working with the chair of each committee to ensure that, where appropriate, their advice of the committees is obtained in a timely manner.

The practices and procedures of committees could include:

- committee meetings must be held in the watershed and be open to the public;
- the term of the Chair be limited to two years, with the opportunity for only one additional two-year term;
- they be authorized to establish working groups from time to time in areas they consider advisable. Such areas may include information management, public engagement, education and outreach, research and monitoring; and
- they be required to submit periodic progress reports to the Minister on their operations, and any advice related to implementation of the Plan. The schedule will be determined once the committees are established.

The functions of these advisory committees, as set out in the Act, are described below. The Minister is also authorized to specify additional functions for each advisory committee.

(1) Lake Simcoe Science Committee:

The *Lake Simcoe Science Committee*, composed of scientific experts in watershed protection issues, would review the environmental conditions of the watershed and advise on the:

- ecological health of the *Lake Simcoe watershed*;
- current and potential significant threats to the ecological health of the *Lake Simcoe watershed* and potential strategies to deal with these threats;
- scientific research that is needed to support the implementation of the Plan;
- design and implementation of monitoring programs to monitor whether the Plan is meeting its objectives; and
- proposed amendments to the Plan and regulations made under the Lake Simcoe Protection Act, 2008 and under subsection 75(1.7) of the Ontario Water Resources Act.

This committee could also be asked to assess whether a proposed amendment to the Plan is consistent with the precautionary principle and, if not, whether the proposed amendment should be modified to achieve consistency.

(2) Lake Simcoe Coordinating Committee

The *Lake Simcoe Coordinating Committee* would be comprised of representatives drawn from across the watershed including persons representing municipalities, Aboriginal communities, the LSRCA, the Province, the agricultural, commercial and industrial sectors of the watershed's economy including small businesses, interest groups, including environmental groups, and the public.

The functions of the *Lake Simcoe Coordinating Committee*, as set out in the Act, would include, among others:

- providing a forum to coordinate implementation of the Plan and identify and resolve issues that arise in relation to implementation or Aboriginal community engagement principles of Plan;
- providing advice to the Minister on any issues or problems related to the implementation of the Plan;
- providing advice to the Minister on the types of measures that could be taken to deal with the threats to the ecological health of the *Lake Simcoe Watershed*, identified by the *Lake Simcoe Science Committee*, including policies that could be included in the Plan, or regulations that could be made under an Act; and
- assisting the Minister and other public bodies to monitor progress on the implementation of the Plan.

It is recognized that the advisory committees may need additional support. For example, environmental monitoring and stewardship are carried out by many organizations within the watershed. Building on alliances among these organizations that conduct these functions in the watershed would ensure effective collaboration and efficient use of resources. Examples of benefits from these alliances include improved information management, communications, public education, outreach, research and monitoring.

Lake Simcoe Fisheries Stakeholder Committee

In 2007, the MNR created a Lake Simcoe Fisheries Stakeholder Committee to promote, implement and communicate fisheries stewardship initiatives and to provide advice and recommendations on topics related to fisheries management on Lake Simcoe, Lake Couchiching and their watersheds. Membership on the committee represents the diverse interests in the fishery resources of Lake Simcoe.

Liaison between the Lake Simcoe Fisheries Stakeholder Committee and the committees established under the Lake Simcoe Protection Act, 2008 will be critical to ensuring a coldwater fish community is restored in Lake Simcoe. To ensure this coordination, the MNR, in partnership with the Lake Simcoe Fisheries Stakeholder Committee will provide progress reports to the *Lake Simcoe Coordinating Committee* on fisheries management in the *Lake Simcoe watershed*.

Public Engagement

The Plan will be informed by the best available science and the advice of those who live, work, invest and play in the *Lake Simcoe watershed* as they plan for a healthy future for Lake Simcoe. Collaboration with the public, Aboriginal communities and community partners throughout plan implementation, reviews and amendments will be important to guide the implementation of the Plan. This will keep people not only informed but will also provide an opportunity for active involvement on a local subwatershed scale.

Aboriginal Community Engagement

The Plan recognizes the contributions made by First Nations and Métis communities to protect the health of the lake and the special relationship that the Chippewas of Georgina Island First Nation have with Lake Simcoe. The Chippewas of Georgina Island First Nation have been an active participant in the LSEMS for many years. The Plan anticipates that Aboriginal communities will maintain an active interest and participation with the design, development and implementation of protection initiatives. The Plan provides for ongoing opportunities for Aboriginal communities with cultural, heritage or economic links to Lake Simcoe to continue to collaborate on programs and initiatives to protect the lake.

The Province is committed to ensuring that Aboriginal communities have the necessary support to respond to and participate in engagement opportunities related to the design and development of Lake Simcoe protection initiatives.

Financing Strategy

All stakeholders have recognized that sustained funding is needed to implement the Plan. Given the costs of implementation, the Plan incorporates innovative funding mechanisms, while relying on cost sharing and building on existing program funding and partnerships.

Early estimates indicate that the cost of implementing the Plan could be in the range of $100 million and $135 million in operating (for the first 10 years, 2009-2019). *Infrastructure* costs, which could be staggered over a longer period, include an estimated $120 million for stormwater management and up to $105 million for *sewage treatment plant* upgrades (with requirements for higher treatment levels to accommodate expected population growth). *Infrastructure* estimates will be refined by the province over the next year in consultation with local municipalities, and others, while developing the phosphorus reduction strategy.

Although there are costs associated with implementing the Plan, there are also tremendous ecological and economic benefits. A recent study shows that the benefits provided by the *Lake Simcoe watershed* ecosystem are, at a minimum, worth $975 million per year[1]. These benefits include carbon storage, water quality, flood control, waste treatment, clean air, as well as tourism and recreational opportunities.

The Plan reflects the following principles with respect to financing:

- diverse sources will be considered to reduce dependence on a single source;
- innovative financing tools will be promoted (i.e. public and private sector partnerships, cost sharing, user fees, *water quality trading*, etc);
- the priorities of the Plan must be reflected;
- environmental, economic and social sustainability will be considered;
- be mutually supportive;
- reflect the role of municipalities, including continued responsibility for water and wastewater services;
- flexibility to deal with emerging commitments and priorities over time;
- the evaluation of the options will take risk into consideration; and
- strategies must be clearly understood by the public.

Implementation will be based on funding those priority actions which are most critical to achieving the targets and objectives set out in the Plan. Wherever possible, cost-effective solutions will be employed. It is recognized that not everything can be done at once and that implementation will need to be phased-in.

The funding approach to support the implementation of the Plan is based on partnerships, where no one organization will have to bear the burden of all costs. Building on an adaptive management approach, actions will have built-in flexibility with a range of potential key partners and financing mechanisms identified. Also critical are the contributions of volunteers, who have in the past and indeed will continue to dedicate their time and resources to protecting and restoring the ecological health of the *Lake Simcoe watershed*.

[1] David Suzuki Foundation and the Lake Simcoe Region Conservation Authority released the report "Hidden wealth revealed in Ontario's Greenbelt: The Lake Simcoe Watershed - Lake Simcoe Basin's Natural Capital: The Value of the Watershed's Ecosystem Services", June 2008.

As various partners take responsibility for implementing policies, funding sources and the actual costs of implementation will become clearer. As the Plan is implemented, the Province will amend the Plan and the financing strategy to include these details. Because of its evolving nature, the Plan is intended to be reviewed and potentially amended at least every ten years.

Funding sources and priority of actions for the implementation of the Plan will be further informed by the work and advice of the *Lake Simcoe Coordinating Committee* and the technical and scientific advice of the *Lake Simcoe Science Committee*.

It is recognized that opportunities exist within existing programs, which already have committed funding to support actions. These include: the Province's $20 million commitment, federal funding commitments, LSRCA funding commitments, municipal contributions and the work of environmental NGOs and the development community.

The Province's $20 million commitment will focus primarily on:

- providing assistance to farmers to encourage agricultural best management practices that reduce environmental impacts;
- scientific research and monitoring; and
- supporting the coordination of Plan implementation – this would include the creation and financial support to the two advisory committees (coordinating and science) and administrative support for coordination through a temporary Lake Simcoe Plan Project Team within the MOE.

It is also recognized that municipalities will play an important role, as they continue to be responsible for water and wastewater infrastructure upgrades and investments. The Province will work with municipalities towards full-cost recovery and the user-pays principle.

Recognizing that these costs may be substantial, the MEI is developing a water investment and affordability strategy to help municipalities achieve full-cost recovery, build financial and organizational capacities, and address affordability issues. The Province is currently working with the federal government to identify priority projects that may be implemented with Building Canada Plan funding. There may be an opportunity to encourage projects focused on protecting Lake Simcoe.

The Plan will promote innovative approaches such as *water quality trading*. The Province will conduct a feasibility study to serve as a basis for moving forward with a regulation to establish a *water quality trading program* in the *Lake Simcoe watershed*. *Water quality trading* is a market-based approach that sets a limit on pollutants and allows those that have a high abatement cost to fund activities that reduce pollutants in other areas of the watershed at a lower cost. In the end, the same or a greater amount of pollution reduction is achieved at a lower total cost. *Water quality trading* has been successfully implemented in Pennsylvania, Virginia, Connecticut and parts of Ontario to address excessive nutrient loadings.

The Plan includes targets and timeframes for action. The public can refer to these to gain a better understanding of how funding for actions is being employed. Public reporting will also provide a critical link for communicating how funds are being spent to protect and restore the ecological health of the *Lake Simcoe watershed.*

Plan Amendments

Recognizing that this Plan is intended to adapt to new science and new information, the Act provides for amendments to the Plan. A proposal to amend this Plan could arise in many ways including as a result of the Plan review that is to take place at least every ten years, in response to monitoring reports, or on the advice of the coordinating committee or science committee. The Act also requires that when a Plan amendment is proposed, notice must be provided to certain individuals as well as on the Environmental Bill of Rights registry.

To facilitate awareness and implementation of amendments, to the extent practical, the MOE will attempt to make or propose amendments to this Plan such that several amendments take place at once, not individually or in close succession.

The following types of Plan amendments (including new policies or other new content) must be made by the Lieutenant Governor in Council:

- Amendments to the principles set out in Chapter 1;
- Amendments to key targets and goals, including the target for dissolved oxygen of 7 mg/L in the lake and the long term goal for phosphorus loading of 44 T/year; and
- Amendments to designated policies (**DP**).

The following types of Plan amendments (including new policies or other new content) may be made by the Minister of the Environment:

- Amendments intended to clarify a provision in the Plan, including clarifications to designated policies (**DP**) policies and the authority to modify, remove or, provide additional definitions for the terms used in the Plan;
- Amendments in relation to indicators including the authority to add indicators to the Plan;
- Amendments to strategic action (**SA**) policies and monitoring (**M**) policies other than complete removal of policies;
- Amendments to prevent conflicts and to make the Plan consistent, with an assessment report and source protection plan submitted under the Clean Water Act, 2006 for the Lake Simcoe and Couchiching/Black River Source Protection Area; and
- Amendments to correct a clerical, grammatical or typographical error.

GLOSSARY

"Adverse effect" means any impairment, disruption, destruction or harmful alteration. (ORMCP)

"Agricultural uses" means the growing of crops, including nursery and horticultural crops; raising livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm buildings and structures, including accommodation for full-time farm labour when the size and nature of the operation requires additional employment. (Greenbelt Plan and PPS, 2005)

"Agriculture-related use" means those farm-related commercial and industrial uses that are small-scale and directly related to a farm operation, and are required in close proximity to the farm operation. (Greenbelt Plan and PPS, 2005)

"Average Concentration Limit" means the effluent concentration of a contaminant set out in a *sewage treatment plant* approval that shall not be exceeded by the owner for any specified period in time.

"Benthic" means bottom dwelling organisms that are used as *indicators* of environmental conditions.

"Bioengineering" means a natural engineering technique for bank stabilization that incorporates the use of native plants together with natural materials (logs, live stakes, live brush bundles, etc.) to increase slope stability.

"Connectivity" means the degree to which key natural heritage features or key hydrologic features are connected to one another by links such as plant and animal movement corridors, hydrologic and nutrient cycling, genetic transfer, and energy flow through food webs. (Greenbelt Plan)

"Development" means the creation of a new lot, a change in land use, or the construction of buildings and structures, any of which require approval under the Planning Act, the Public Lands Act, the Conservation Authorities Act, or that are subject to the Environmental Assessment Act, but does not include,

a. the construction of facilities for transportation, *infrastructure* and utilities used by a public body;

b. activities or works under the Drainage Act; or

c. the carrying out of agricultural practices on land that was being used for *agricultural uses* on the date the Plan came into effect. (Greenbelt Plan)

"Director" means a *Director* appointed under section 5 of the Ontario Water Resources Act.

"Dissolved oxygen" as it relates to the target of 7 mg/L, means the late summer, volume weighted, hypolimnetic *dissolved oxygen* concentration of 7 mg/L in Lake Simcoe.

"Ecological integrity" which includes hydrological integrity, means the condition of ecosystems in which,

a. the structure, composition and function of the ecosystems are unimpaired by stresses from human activity;

b. natural ecological processes are intact and self-sustaining; and

c. the ecosystems evolve naturally. (ORMCP)

"Ecological functions" means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes, including hydrological functions and biological, physical, chemical and socio-economic interactions. (ORMCP)

"Enhanced protection level" means the level of protection for stormwater management works specified in Chapter 3 of the MOE's Stormwater Management Planning and Design Manual, 2003 that corresponds to the end-of-pipe storage volumes required for the long-term average removal of 80% of suspended solids.

"Existing settlement areas" are *settlement areas* that are designated in an official plan on the date the Plan comes into effect.

"Existing uses" means uses legally established prior to the date that the Lake Simcoe Protection Plan came into force. Existing agricultural accessory buildings and structures including farm dwellings can expand on the same lot subject to the provisions of the municipal zoning by-law.

"Fish habitat" As defined in the Fisheries Act, c. F-14, means spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes. (PPS, 2005)

"High quality" with respect to natural cover means that the cover demonstrates a number of characteristics that influence the functional ability of a feature such as shape, age, structure and area of cover.

"Indicators" are scientific variables (things that scientist measure) that help to simplify large amounts of complex information. They are a guide used to determine if environmental quality or health is good or bad, e.g. *dissolved oxygen* and phosphorous concentrations are often used to characterize and communicate the condition or health of a lake to the public (adapted from Lake Simcoe Science Advisory Committee report).

"Infrastructure" means physical structures (facilities or corridors) that form the foundation for *development* or resource use. *Infrastructure* includes: *sewage* and water systems, sewage treatment systems, waste management systems, electric power generation and transmission including *renewable energy systems*, communications/telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities, but does not include "community infrastructure" as defined by the Growth Plan for the Greater Golden Horseshoe, 2006.

"Integrated treatment train approach" refers to a planned sequence of methods of controlling stormwater and keeping its impact to a minimum by techniques including, but not limited to:

- source controls, such as green roofs;
- lot-level controls such as rain gardens;
- conveyance controls such as grassed swales; and
- end-of-pipe controls such as wet ponds at the final discharge stage.

"Intermittent streams" means stream-related watercourses that contain water or are dry at times of the year that are more or less predictable, generally flowing during wet seasons of the year but not the entire year, and where the water table is above the stream bottom during parts of the year. (Greenbelt Plan)

"Invasive species" means species of plants, animals, and micro-organisms introduced by human action outside their natural past or present distribution whose introduction or spread threatens the environment, the economy, or society.

"Invasive species watch list" means a list of *invasive species* that have high potential to be introduced to the watershed so should be "watched" for through general observation and more organized monitoring initiatives.

"Lakes" means any inland body of standing water, usually fresh water, larger than a pool or pond or a body of water filling a depression in the earth's surface. (Greenbelt Plan)

"Lake Simcoe Coordinating Committee" means the committee established in Section 19 of the Lake Simcoe Protection Act, 2008.

"Lake Simcoe Science Committee" means the committee established in Section 18 of the Lake Simcoe Protection Act, 2008.

"Lake Simcoe shoreline" means the mark made by the action of water under natural conditions on the shore or bank of Lake Simcoe which action is so common and usual and so long continued that it has created a difference between the character of the vegetation or soil on one side of the mark and the character of the vegetation or soil on the other side of the mark.

"Lake Simcoe watershed" means,

a. Lake Simcoe and the part of Ontario, the water of which drains into Lake Simcoe; or

b. If the boundaries of the area described by clause (a) are described more specifically in regulations, the area within those boundaries (Lake Simcoe Protection Act, 2008).

"Littoral Zone" means the area of shallow water in a lake that extends from the shoreline lakeward to the limit occupancy of rooted aquatic plants.

"Major development" means *development* consisting of:

a. the creation of four or more lots;

b. the construction of a building or buildings within a ground floor area of 500 m^2 or more; or

c. the establishment of a *major recreational use*. (ORMCP)

"Major recreational use" means recreational uses that require large-scale modification of terrain, vegetation, or both and usually also require large-scale buildings or structures, including but not limited to the following:

a. golf courses;

b. serviced playing fields;

c. serviced campgrounds; and

d. ski hills. (Greenbelt Plan)

"Mineral aggregate operation" means:

a. An operation, other than wayside pits and quarries, conducted under a licence or permit under the Aggregate Resources Act, or successors thereto; and

b. Associated facilities used in extraction, transport, beneficiation, processing or recycling of mineral aggregate resources and derived products such as asphalt and concrete, or the production of secondary related products. (Greenbelt Plan)

"Municipal sewage treatment plant" means a *sewage treatment plant* owned by a municipality or part of a municipal responsibility agreement.

"Natural self sustaining vegetation" means self sustaining vegetation dominated by native plant species. (ORMCP)

"Non-municipal sewage treatment plant" means a *sewage treatment plant* that is not owned by a municipality or part of a municipal responsibility agreement.

"Permanent stream" means a stream that continually flows in an average year. (Greenbelt Plan)

"Primary production dynamics" means the production of organic compounds from atmospheric or aquatic carbon dioxide, principally through the process of photosynthesis.

"Redevelopment" means the creation of new units, uses or lots on previously developed land in existing communities, including brownfield sites. (PPS, 2005)

"Riparian area" means the area of land adjacent to a stream, river, lake or wetland.

"Settlement areas" means urban areas and rural *settlement areas* within municipalities (such as cities, towns, villages and hamlets) where:

a. *development* is concentrated and which have a mix of land uses; and

b. lands have been designated in an official plan for *development* over the long term planning horizon provided for in the Provincial Policy Statement, 2005. Where there are no lands that have been designated over the long-term, the *settlement area* may be no larger than the area where *development* is concentrated (Growth Plan)

"Sewage" includes drainage, stormwater, commercial wastes and industrial wastes and such other matter or substance as is specified by the regulations under the Ontario Water Resources Act.

"Sewage treatment plant" means a *sewage works* for which an approval is required under section 53 of the *Ontario Water Resources Act* and that,

a. treats *sewage* from one or more buildings within the meaning of the Building Code Act, 1992; and

b. disposes of the treated *sewage* in a surface water body in the *Lake Simcoe watershed*.

"Sewage Works" means any works for the collection, transmission, treatment and disposal of *sewage* or any part of such works, but does not include plumbing to which the Building Code Act, 1992 applies.

"Shoreline built-up areas": means shoreline areas outside of *settlement areas* that are:

a. built-up areas where *development* is concentrated; or

b. lands which have been designated in municipal official plans and zoned in municipal zoning by-laws for concentrated *development*, as of the date this Plan came into effect.

"Significant" means:

a. In regard to *wetlands*, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time;

b. In regard to the habitat of endangered species and, threatened species, means the habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced populations of endangered species or, threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle;

c. In regard to *woodlands*, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. The Province (Ministry of Natural Resources) identifies criteria relating to the forgoing (Greenbelt Plan)

d. In regard to *valleylands*, ecological important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system (PPS 2005).

"Site alteration" means activities such as filling, grading and excavation that would change the landform and natural vegetative characteristics of land, but does not include:

a. The construction of facilities for transportation, *infrastructure* and utilities uses by a public body;

b. Activities or works under the Drainage Act; or

c. The carrying out of agricultural practices on land that was being used for *agricultural uses* on the date the Plan came into effect. (Greenbelt Plan).

"Subsurface sewage system" means a sewage system to which the Building Code Act, 1992 applies and which is a Class 4 (leaching bed system) sewage system under the Building Code.

"Subsurface sewage works" means a *sewage* works that disposes of *sewage* from one or more buildings within the meaning of the Building Code Act, 1992, does not dispose of sewage to a surface water body and for which an approval is required under section 53 of the *Ontario Water Resources Act* by virtue of subsection 53 (6.1) of the Act.

"Tier 1 water budget" means a Tier 1 water budget that is prepared under the Clean Water Act, 2006 as part of an assessment report and that has been approved by the *Director* for the Lake Simcoe and Couchiching/Black River source protection area.

"Tier 2 water budget" means a Tier 2 water budget that is prepared under the Clean Water Act, 2006 as part of an assessment report and that has been approved by the *Director* for the Lake Simcoe and Couchiching/Black River source protection area.

"Valleyland" means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year (ORMCP).

"Water Quality Trading" means an approach to achieving water quality targets or objectives in which a point source may offset with or purchase pollutant reduction credits from another point source or non-point source in a defined geographic area (e.g. the same watershed) which can then be used to meet the point source's discharge requirements for the same pollutant. Water Quality Trading will be further defined by regulation (rules, requirements, conditions, etc.) if enabled through regulation.

"Wetland" means land such as a swamp, marsh, bog or fen (not including land that is being used for agricultural purposes and no longer exhibits wetland characteristics) that,

a. is seasonally or permanently covered by shallow water or has the water table close to or at the surface;

b. has hydric soils and vegetation dominated by hydrophytic or water-tolerant plants; and

c. has been further identified, by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time (ORMCP).

"Wildlife habitat" means land that,

a. is an area where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species; and

b. has been further identified, by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time (ORMCP)

"Woodland" means a treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees (ORMCP).

SCHEDULE: SUMMARY OF EFFECT OF DESIGNATED POLICIES (DP) BY REFERENCE NUMBER

Policy #	*Planning Act*	*Condominium Act*	Sewage Works Approvals	Permission under Sec. 28 of *Conservation Authorities Act*	*Public Lands Act*
4.1	x				
4.2			x		
4.3			x		
4.4			x		
4.7	x	x			
4.8	x	x			
4.9			x		
4.10			x		
4.11			x		
4.16	x	x	x	x	
4.21	x				
5.6	x				
6.1	x	x		x	x
6.2	x	x		x	x
6.3	x	x		x	x
6.4	x	x		x	x
6.5	x	x		x	x
6.6	x	x			
6.7	x	x		x	x
6.8	x	x		x	x
6.9	x	x		x	x
6.10	x	x		x	x
6.11	x	x		x	x
6.18	x	x		x	x
6.19	x	x		x	x
6.20	x	x		x	x
6.21	x	x		x	x
6.22	x	x		x	x
6.23	x	x		x	x
6.24	x	x		x	x
6.25	x	x		x	x
6.26	x	x		x	x
6.29	x	x		x	x
6.30	x	x		x	x
6.31	x	x			
6.32	x				
6.33	x				
6.34	x	x			
6.35	x				
6.36	x				
6.37	x				
6.38	x				
6.39	x	x			
6.40	x	x		x	x

LIST OF ACRONYMS

DFO – Department of Fisheries and Oceans

DP – Designated Policies

EFP – Environmental Farm Plans

LSEMS – Lake Simcoe Environmental Management Strategy

LSRCA – Lake Simcoe Region Conservation Authority

M – Monitoring (policies)

MAFRA – Ministry of Agriculture, Food and Rural Affairs

MEI – Ministry of Energy and Infrastructure (formerly MPIR – Ministry of Public Infrastructure Renewal)

MHP – Ministry of Health Promotion

MMAH – Ministry of Municipal Affairs and Housing

MNR – Ministry of Natural Resources

MOE – Ministry of the Environment

MTOUR – Ministry of Tourism

NGO – Non-government organizations

OFAH – Ontario Federation of Anglers and Hunters

ORMCP – Oak Ridges Moraine Conservation Plan.

OWRA – *Ontario Water Resources Act*

PPS – Provincial Policy Statement

SA – Strategic Actions (policies)

APPENDIX I – LAKE SIMCOE SCIENCE ADVISORY COMMITTEE

Dr. Peter Dillon – Co-chair for SciAC. Limnologist with over 25 years of experience. Holds a Canada Research Chair in Watershed Biogeochemistry and Director, Worsfold Water Quality Centre, Trent University.

Dr. Jennifer Winter – Co-chair for SciAC. - Lead MOE Lake Simcoe research scientist, member, Special Graduate Faculty at the University of Guelph, an Honorary Research Associate with Trent University and Adjunct Assistant Professor at the University of Waterloo.

Dr. David O. Evans – Senior MNR research scientist with 30 fisheries research experience on Lake Simcoe.

Dr. Bahram Gharabaghi – Assistant Professor at the University of Guelph in the School of Engineering, with 10 years of research and development experience in hydrologic modelling and non-point source pollution control in Canada and internationally.

Dr. Stephanie Guildford – Assistant Professor, Large Lakes Observatory, University of Minnesota Duluth, Full Adjunct Assistant Professor, University of Waterloo where she remains committed to work on Lake Simcoe and the Lower Great Lakes.

Dr. David Barton (Alternate for Dr. Guildford) – Professor, Biology Department, University of Waterloo with research focus of applied aquatic ecology.

Dr. John Gunn – Canada Research Chair, Stressed Aquatic Systems, Laurentian University and 27 years of fisheries research with MNR.

Dr. Lewis Molot – Professor, Faculty of Environmental Studies, York University, studying the biogeochemistry of lakes for 25 years and Chair, Ontario EcoSchools program.

Dr. Ivan O'Halloran – Associate Professor, Ridgetown Campus, University of Guelph and Research Coordinator, Nutrient Management Joint Research Program (MAFRA/MOE).

Dr. Justina Ray – Executive Director, Wildlife Conservation Society Canada and Adjunct Professor, Faculty of Forestry, University of Toronto, and Research Associate, Center for Biodiversity and Conservation Biology, Royal Ontario Museum.

Dr. Cynthia Wesley-Esquimaux – Assistant Professor, University of Toronto, Department of Aboriginal Studies and the Faculty of Social Work, focusing on developing creative solutions to complex social issues. Resident of Georgina Island First Nation in Lake Simcoe.

Rhonda Gagnon – Member of Dokis First Nation and the Union of Ontario Indians (UOI) working on water policy analysis in the Lands and Resources Department.

APPENDIX II – LAKE SIMCOE STAKEHOLDER ADVISORY COMMITTEE

Gayle Wood – Chief Administrative Officer, Lake Simcoe Region Conservation Authority and Co-Chair of SAC

Bruce Macgregor – Chief Administrative Officer, Regional Municipality of York and Co-Chair for SAC

Mark Aitken – Chief Administrative Officer, County of Simcoe

William Allen – President, Tourism Industry Association of Ontario

Jessica Annis – Environment and Resources Manager, Ontario Stone, Sand & Gravel Association (Formerly with the Building Industry & Land Development Association (BILD))

Greer Atkinson – (alternate for Rachel Big Canoe) Aboriginal Student Advisor, Chippewas of Georgina Island First Nation

Jon Babulic – Chief Administrative Officer, City of Barrie

James Bazely – 2nd Vice President , Ontario Home Builders' Association.

Edward Beach – Farmer, Durham Region, member of Durham Region Federation of Agriculture, Lake Simcoe Water Quality Improvement Program Review Committee and Lake Simcoe Environmental Management Strategy Working Group.

Rachel Big Canoe – Economic Development Assistant, Chippewa's of Georgina Island First Nation

Wesley Brown – Board of Directors, Ontario Federation of Anglers.

Christine Drimmie, Policy and Research Advisor, Office of the Regional Chair and CAO for the Regional Municipality of Durham

Robert Eisenberg – Chair and founding Director, Rescue Lake Simcoe Coalition

Gary Gregoris – Vice President, Mattamy Development Corporation

Paul Harpley – President Manager Interpretation, Culture and Design, Toronto Zoo and President, South Lake Simcoe Naturalists

Harry Hughes – Mayor, Oro-Medonte Township, member of Simcoe County Council

Jerry Kucharchuk – Owner/operator of Peninsula Resort, Pefferlaw

Jeffrey Lehman – Councillor, City of Barrie, Chair, Finance Committee of Council

Claire Malcolmson – Project Coordinator, Campaign Lake Simcoe, Environmental Defence

Phyllis Morris – Mayor, Town of Aurora, founding Chair of Aurora's Environmental Advisory Committee

Fraser Nelson – President and General Manager, Metrus Development Inc.

Annabel Slaight – Co-founder of Ladies of the Lake/The Wave

Karen Kraft Sloan – Special Advisor on the Environment, York University, founder of EcoNexus, former Canada's Ambassador for the Environment and former member of parliament, federal ridings of York-Simcoe and North York

Mark Wales – Executive member, board of the Ontario Federation of Agriculture, President of the Garlic Growers Association of Ontario, member of board, Ontario Fruit and Vegetable Growers Association

Get Involved

PROTECTING LAKE SIMCOE IS A PARTNERSHIP AMONG ALL OF US.

You can contact:

Lake Simcoe Project Team
Ministry of the Environment
55 St. Clair Ave. West, 7th floor
Toronto, ON M4V 2Y7

Tel: 416-325-4000 or 1-800-565-4923
Fax: 416-327-9823
Email: protectlakesimcoe@ontario.ca
Website: www.ene.gov.on.ca/en/water/lakesimcoe

For more information contact the Public Information Centre toll free number at 1-800-565-4923, or 416-325-4000 in Toronto

Draft Lake Simcoe Protection Plan

Protecting our environment.

Ontario